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**Lockheed Martin Energy Systems, Inc.**
**Oak Ridge Y-12 Plant Procedures**

Number: Y10-35-008
Rev. Date: 6-30-98
Supersedes: 1-20-98
Page: 1 of 75
**CATEGORY**: **III**

***FACILITIES MANAGEMENT ORGANIZATION***
***ADMINISTRATIVE PROCEDURES***

Planner's Guide

| Concurrence by the following organizations is documented in the procedure history file: |
|---|
| PCCB Chairperson<br>Procedure Validator<br>Subject Matter Expert |

| **APPROVALS** | | |
|---|---|---|
| Printed Name: | | |
| Signature: | | |
| Procedure Configuration Control Board Chairperson | | Date |
| Printed Name: | | |
| Signature: | | |
| Manager, Maintenance Programs and Administrative Services | Date | Effective Date |

| This procedure has been revised by an Authorized Derivative Classifier and has been determined to be UNCLASSIFIED. This review does not constitute clearance for public release. | |
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| | |
| Authorized Derivative Classifier | Date |

## REVISION LOG

| Revision Date | Revision Description | Affected Page(s) |
|---|---|---|
| 6-30-98 | – Clarification of planning level<br>– Deleted Appendix J, added Y70-43 for HA<br>– Reference to CM-43 changed to Y15-001INS<br>– More details in sections of JHA team<br>– Lesson learned expected from equipment issuer to equipment/maintenance issuer | All |

**CONTENTS**



## I. PURPOSE

To utilize a structured systematic approach for developing maintenance job packages. The matrix found in Appendix I helps define the required elements based on hazard and complexity.

One key element needed to consistently perform maintenance in a safe, effective, and efficient manner is the proper use of written procedures and work instructions. The balanced combination of such written guidance, Skill of Craft, technical support, work-site supervision, and involvement of operations line management/customer helps to achieve quality workmanship essential to safe and reliable plant operation. Achievement of excellence in maintenance requires team effort, professionalism, and dedicated commitment to upholding standards.

## II. REQUIREMENTS REFERENCES

A. Flowdown Documents

1. DOE Orders
   a. *4330.4B: Maintenance Management Program Standards Requirements Identification Document (SRID)*
   b. 5440.1C: *Implementation of The National Environmental Policy Act (NEPA) of 1969*

2. Energy Systems
   a. EP-CC302: *Construction Excavation/Penetration Permit*
   b DOP-102: *Deficient Material Condition - Identification and Control*
   c. OP-301: *Occurrence Notification and Reporting Systems*
   d. FIN-11: *Property Transfer Record*
   e. Y73-107: *Energy Isolation and Control (Lockout/Tagout)*
   f. MA-102: *Power Distribution Work Permit*
   *g*. MA-101: *Application of Federal Labor Standards*
   h. *Maintenance Management Program Requirements for Environment, Safety, & Health (ES&H) Structures, Systems, and Components (SSCs)*

3. Plant Procedure
   a. Y/EN-4382: *HSEA/Engineering Working Procedure for NEPA Review and Compliance*
   b. Y10-012: *Hazard Identification Planning for Maintenance and New Work Tasks*
   c. Y70-043: *Job Hazard Analysis*
   d. Y10-153: *Temporary Modification Control*
   e. Y10-187: *Integrated Safety and Change Control Process*
   f. Y10-143: *Deficient Material Condition - Identification and Control*
   g. Y10-202: *Integrated Safety Management Program*
   h. Y10-204: *Post Maintenance Testing*
   i. Y15-001INS: *Y-12 Guidance for Grading SSCs*
   j. Y70-204: *Asbestos Procedure for the Y-12 Plant*
   k. Y70-205: *Potable Water System*
   l. Y70-255: *Hot Work*
   m. Y70-257: *Fire Wall Penetration*
   n. Y70-525: *Operations Safety Work Permit*
   o. Y70-528: *Safety Requirements for Electrical "On or Near" Work*

## II. REQUIREMENTS REFERENCES (cont.)

A. *Flowdown Documents* (cont.)

p. SH-138PD: *Confined Space Program*
q. Y70-903: *Transfer, Storage, or Disposal of Waste*
r. Y70-063: *Y-12 Site Respirator Program - Supplied Air Respirator*
s. Y70-809: *Undetermined Safety Question Determination (USQD)*
t. Y70-403: *Gas System Cross-Connection Control*
u. Y70-915: *National Environmental Policy Act (NEPA) Review and Compliance*
w. Y70-920: *Connections to Plant Storm*

4. FMO Procedure
   a. Y10-35-002: *Planning Maintenance Jobs*
   b. Y10-35-004: E*xecuting Maintenance Job*
   c. Y10-35-006: *Completing Maintenance Job*
   d. Y10-35-009: *Maintenance Supervisor's Work Control Guide*

5. Plant Policy
   a. Y72-003: *Y-12 Site As Low As Reasonably Achievable Policy*

B. Other Documents Needed
   1. *Y-12 Plant Electronic Maintenance Job Request User Guide*

## III. SCOPE/LIMITATIONS

This planning guide applies to personnel when performing maintenance planning activities.

## IV. ACRONYMS AND DEFINITIONS

See Appendix H

## V. GENERAL INFORMATION

A. For determining procedural verbatim compliance, the word "shall" is used to denote a requirement. The word "should" is used to denote a recommendation, and the word "may" is used to denote permission (i.e., it is neither a requirement nor a recommendation).

B. Entries on the Job Package Instructions (Appendix D, Attachment D4), and on any associated documents attached to the MJR, shall be made in black ink, so that clear reproduction is possible.

C. Entries shall be legible. Printing is preferred, except for signatures.

D. Correction of entries shall be made so as to not obliterate the original; single-line markouts are preferred. Legibly write the correct entry, initial and date near the correction. See example of work instructions in Appendix D, Attachment D5.

## V. GENERAL INFORMATION (cont.)

E. Erasing or using correction tape, opaquing fluids, or any other obliteration of an entry shall not be permitted.

F. Twenty-four hour clock time (military time) shall be used where entry is required.

G. During the planning of maintenance activities, an additional task may be generated. In these cases , operations line management, working with the planner should generate the task or MJR in accordance with the *Y-12 Plant Electronic Maintenance Job Request (MJR) User Guide.*

H. When a maintenance job requires personnel from several work control centers (WCCs) to perform maintenance activities, a lead planner shall be assigned and shall be responsible for writing tasks to, and coordinating with, planners from other WCCs.

I. If the need for another task or MJR is noted by the craftsperson during the performance of a work activity, the supervisor shall be responsible for working with operations line management for initiation of an additional MJR or task.

J. All pages and/or forms attached to the MJR shall be numbered, with the MJR marked as page 1 and all other attachments numbered in succession. Include total number of pages (e.g., 1 of 4, 2 of 4).

K. Planning activities performed by the planner in this procedure may be performed by the Maintenance Supervisor when time constraints, as determined by appropriate FMO Management, Maintenance Shift Supervisor (MSS), or Plant Shift Superintendent (PSS), preclude the use of a planner, such as for emergency maintenance as described in Sect. VI.C. below. The Maintenance Supervisor should inform the Planning Specialist of the situation to allow the Planning Specialist to decide if the situation warrants the need of a planner for backup.

## VI. REQUIREMENTS

A. These guidelines describe key elements involved in the planning of an MJR. Implementation of these guidelines should result in a high level of performance in plant maintenance and, therefore, should contribute to safe and reliable plant operations. Operations line management/customer, with support from maintenance planning and/or the maintenance supervisor, defines the work scope to a level of detail adequate to facilitate identification of Health and Safety hazards and/or compliance issues utilizing the integrated safety methodology per procedure Y10-012.

B. All closed Grades 1 and 2 job packages and associated documentation shall become permanent Facility Records. All closed Grade 3 job packages and associated documentation shall become Lifetime Records. All closed Grade 4 job packages and associated documentation shall be maintained for a minimum of three months (some may be kept longer based on permit retention requirements and for repetitive jobs). (See procedure Y10-35-006, *Completing Maintenance Job*). Documentation retention requirements are defined by SSC Grade.

C. Emergency Maintenance activities shall be performed as follows:

1. When an emergency maintenance activity has been identified, the Plant Shift Superintendent, the appropriate accountable line manager, the Operations Manager/Facility Manager or designee guidance, and

the responsible FMO Department Manager shall IMMEDIATELY be notified. During off-shifts, the emergency information should flow through the Maintenance Shift Supervisor (MSS).

## VI. REQUIREMENTS (cont.)

C. Emergency Maintenance activities shall be performed as follows: (cont.)

2. The Plant Shift Superintendent (PSS), or designee, is authorized, utilizing accountable line manager/Operations manager/Facility manager or designee guidance, to take necessary action to handle an emergency in the most expeditious manner available. Maintenance work instructions may be either written or verbal and may be provided by someone other than a planner.

3. The Maintenance General Supervisor or MSS shall maintain close control of emergency work activities.

4. When the emergency situation no longer exists, all further maintenance activities shall be performed in accordance with normal work control procedures.

D. The assignment of work priorities shall have the following considerations:

1. Safety

ALARA - exposure and contamination control; minimizing the spread of contamination from leaks; and determining actions and intervals based on minimizing RAD exposure or Beryllium exposure using ALARA principles. Industrial Hygiene and Radiological Control personnel are to be involved as needed.

2. Operational/mission requirements.

E. The customer/equipment owner in conjuction with the Maintenance Planner/Supervisor shall determine the team members necessary to complete the Job Hazards Analysis in accordance with Y70-043.

## VII. RESPONSIBILITIES

A. *Operations Line Management/Customer*

1. Ensuring that all work performed within their facility/operation's footprint is performed safely and within the Safety Authorization Basis.

2. Operations, with support from maintenance planning and/or maintenance supervisor, defines the work scope to a level of detail adequate to facilitate identification of Health and Safety Hazards and/or compliance issues utilizing integrated safety methodology. Operations generates Electronic MJR.

Hazard Identification is an Operational Safety Board action. Team make-up is all or part of the below disciplines as determined by Operations line management/customer.

- □ Operations Line Management/Customer
- □ Industrial Hygiene
- □ Fire Protection
- □ Facility Safety
- □ Engineering
- □ Process/Facility Engineer
- □ Environmental/Waste Management
- □ Maintenance/Utilities
- □ RadCon
- □ Quality Assurance
- □ Criticality Safety
- □ Workforce (craft, hands-on worker)

- □ Industrial Safety
- □ Other SMEs as appropriate

**VII. RESPONSIBILITIES (cont)**

A. *Operations Line Management/Customer* (cont.)

3. Operations (upon completion of walk-down of work scope, as required) revises detail of work/MJR as required to ensure adequate detail is provided for work planning/hazard control, etc. Operations, with support from maintenance planning/maintenance supervision, determines Final Grade for work planning, utilizing Y10–012, which provides the hazard identification information required to begin work planning.

4. Operations line management and the customer approves the Final Job Grade, releases the MJR for planning, provides job schedule start date (or priority code), supports maintenance planning (development of OSWP/permits, etc.), and identifies post-maintenance testing requirements.

5. The equipment owner in conjunction with the Maintenance Planner/Supervisor utilizes the hazard identification information from the Y10-012 screening to determine the team members necessary to complete a Job Hazard Analysis in accordance with Y70-043.

6 Upon completion of work planning, the Operations line management/customer approves any work scope changes, verifies that maintenance work planning has appropriate ES&H controls (for Final Job Grade), evaluates any changing conditions in work area, and provides work start approval.

7. Work start approval is obtained from the operations manager/designee prior to actual work beginning in the facility. Operations, after ensuring proposed work is on the Plan of the Day for the facility, if applicable, approves the work start. Maintenance activity can be approved for a period of time or for the duration of the task and will be noted on Appendix D, Job Planning Checklist, Attachment D2, Section C under Work Start Approval.

8. Upon completion of maintenance work (after maintenance has restored the work area, removed tooling, used parts, etc.) operations removes tags and LO/TOs, reviews adequacy of any required post-maintenance testing, and documents job closure.

B. *Maintenance Planner*

1. Participates in operations initial walkdown, when required by the job, for incoming MJRs to ensure work scope, proper classification, correct priority, correct PMT requirements, Configuration Management are adequate, and to determine proper routing according to the functional processes of FMO Procedure Y10-35-002, *Planning Maintenance Jobs*. Obtains operations line management/customer concurrence before making any corrections to MJR.

   a. Serves as the initial customer contact and reflects a positive customer-service attitude by providing assistance in obtaining needed support or service.

# *Maintenance Work Flow Diagram*

**Y10-012 Provides Hazard Identification Information required to begin work planning**

**Operations Line Management/Customer**
- **Document Final Job Grade (1,2,3,4)**
- **Release MJR to Maintenance for Planning**

**Y70-043 Provides Hazard Analysis for Hazards Identified in Y10-012**
- **Team Members determined by Operations Line Management, Maintenance Planner, and Supervisor**
- **JHA Team Leader shall be Maintenance Planner/Supervisor for all maintenance activities**

**Plan Job**
**Graded approach risk/complexity**
**Follow Administrative Procedure Y10-35-008**

**Operations Line Management/Customer /Maintenance Support**

- **Verify Work Controls**
- **Evaluate job site against identified hazards**
- **Evaluate job site for hazards not specified in job package**
- **Define controls for any additional hazards found**
- **Determine requirements for PMT/Setting Plant conditions for maintenance**
- **Set Plant conditions**
  - **Permits in place**
  - **Equipment prepared for maintenance**
- **Schedule Maintenance Job**

**Operations Management Approve Work Start Authority**

**Execute Maintenance Job**
- **Follow Controls/Restrictions**
- **Execute Stop Work Authority**

**Operations Line Management/Customer & Maintenance**
- **Perform Post-Maintenance Testing**
- **Restore work area and Perform Clean-up**

**Operations Line Management/Customer Acceptance Signoff**

**Operations Line Management/Customer/Maintenance provides feedback and lessons learned to Planner, Operations and Other Organizations as appropriate.**

**VII. RESPONSIBILITIES (cont.)**

B. *Maintenance Planner* (cont.)

b. Assists in Hazards Identification to determine level of planning and hazard assessment requirements. (Reference Appendix D, Y10-012).

c. Utilizing Appendix D, Y10-012 and Y70-043, works with operations line management/customer to ensure that appropriate hazard analysis is conducted and screening against the safety authorization basis is made prior to initiation of work.

d. The Maintenance Planner/Supervisor shall be the Job Hazards Analysis Team Leader during the performance of the JHA, in accordance with Y70-043, for all maintenance activities.

e. In accordance with the results of Y10-012, plans jobs by using this procedure to ensure that applicable requirements of interfacing policies, procedures, and programs are incorporated into the work instructions.

- Using Appendix B, Skill of Craft Maintenance Guidelines, if the job is skill of craft maintenance and proceeds according to those guidelines.

- Using Appendix C, Minor Maintenance Guidelines, if the job is minor maintenance and proceeds according to the to those guidelines.

- Using Appendix D, Plans the job according to the guidelines.

f. Uses resources, including, but not limited to, the Maintenance Importance Generator (MIG) (defined in Appendix H), operations line management/customer input, and management direction to determine planning priorities.

g. Classifies work as defined in this procedure and provides ready-to-work jobs for each crew.

h. Initiates Postmaintenance Test Control Form (Appendix E, Attachment E) if identified in Appendix D, Y10-012.

i. Reviews completed job packages in accordance with FMO Procedure Y10-35-006, *Completing Maintenance Job*.

**VII. RESPONSIBILITIES (cont.)**

B. *Maintenance Planner* (cont.)

B. After job is completed:

a. Ensures that all completed forms/documentation are routed to appropriate maintenance personnel or files.

b. Ensures that required MJR information is entered into the Facilities Management Information System (FMIS). (See Appendix H)

C. *Maintenance Supervisor*

1. Maintenance supervisor works with Maintenance Planning, Operations Line Management/Customer and concurs with the Final Grade determination by signature sign off.

2. The Maintenance Planner/Supervisor shall be the Job Hazards Analysis Team Leader during the performance of the JHA, in accordance with Y70-043, for all maintenance activities.

3. Provides craft support as appropriate to assist in the walkdown and the development of the work package for the more complex/higher risk type jobs.

4. Agrees that the package can be worked as planned by signing Section A of the Job Package Signature page. (Appendix D, Attachment D2)

5. Assumes typical responsibilities of a planner by planning job packages **when** time constraints, as determined by appropriate FMO Management, Maintenance Shift Supervisor (MSS), or Plant Shift Superintendent (PSS), preclude the use of a planner, such as for emergency maintenance. The Maintenance Supervisor should inform the Planning Specialist of the situation, to allow the Planning Specialist to decide if the situation warrants the need of a planner for backup.

6. Coordinates Post Maintenance Test (PMT), as required, ensuring proper execution of PMT in accordance with FMO Procedure Y10-0204, *Postmaintenance Testing (PMT),* and completion of PMT forms.

7. Returns the completed job package to the planner after reviewing and approving completed job packages in accordance with FMO Procedure Y10-35-006, *Completing Maintenance Job*.

8. Safety-related and nonsafety-related material and equipment should be segregated and clearly tagged or labeled to prevent inadvertent use or issue.

**VII. RESPONSIBILITIES (cont.)**

D. *Operational Safety Board* (OSB)

1. OSB reviews job packages for Grades 1 and 2 jobs, resolves USQDs, considers work permit needs, PMTs, and recommends authorization of work to Operations Line Manager/Customer.

2. OSB reviews jobs package for complex or high-risk tasks and recommends approval of work to be conducted or changes to the job package.

3. OSB customer reviews job package for Configuration Management requirements.

4. OSB customer/FMO determine who will lead and/or complete the JHA per Y70-043.

E. *Maintenance General Supervisor*

1. Conducts routine inspections of work sites and work practices, know as management by walking around, to assist in safety work execution and problem resolution.

2. Periodically observes maintenance activities for adherence to work-control programs and procedures, and determines the effectiveness of these programs in maintaining facility conditions.

3. Provides oversight of the work control center (WCC), and instructs Maintenance Supervisors in proper maintenance job-execution practices.

F. *Maintenance Planning Specialist*

1. Ensures that all planners, in his/her area of responsibility, have implemented the requirements of this procedure.

2. Ensures that quality job packages and work instructions are developed by the personnel under his/her direction.

3. Ensures that incoming MJRs are screened for correct classification, priority, proper backlog code, and required planning.

4. Reviews and/or reassigns job packages returned for changes to or corrections of work instructions.

5. Complies with the requirements of this procedure.

6. Ensures that when specific parts and materials can be used in multiple applications, those applications are identified and documented (used in more than one piece of equipment or system). Refers to this documentation when purchase of parts is required to preclude duplicate or unnecessary multiple purchase or stocking of parts and materials.

G. *FMO Planning Section Manager* instructs Planning Specialists in proper maintenance job-planning practices.

**VII. RESPONSIBILITIES (cont.)**

H. *Maintenance Engineering*

1. Provides assistance to the FMO Work-Planning Section when job packages requires engineering involvement.

2. Serves as liaison between planner and Central Engineering to obtain additional engineering support of maintenance jobs.

I. *Contractor/Subcontractor*

1. Personnel (including key nonnuclear facility contractor and subcontract personnel) involved in the conduct and support of maintenance should be trained in the use of these procedures.

2. Authorizes work to be performed in the facility(s) they own by signing the Work Start Approval form, Appendix D, Attachment D2, Section C on the Job Package Signature Page of the Checklist.

J. *FMO Maintenance Program and Administrative Department Manager* ensures compliance with approved procedures.

K. *Manager, Facilities Management Organization (or designee)* is responsible for the administration of this procedure.

**VIII. ACTION STEPS**

The actions specified in Y10-012 provide the hazard identification, required work permits, and PMT requirements.

A. *Operations Line Management/Customer*

1. Identifies need/concept for maintenance services/job.

2. Initiates electronic MJR.

3. Defines job scope to level of detail adequate to facilitate identification of Health and Safety hazards and/or compliance issues.

4. Initiates Job Hazard Identification

a. Identifies multi-organizational team, utilizing maintenance and OSB resources to accomplish work scope definition and identification of health and safety hazards as appropriate for the risk and complexity of the job being performed.

**NOTE: Utilizing the process found in Y10–012, The Job Hazard Identification Team (when required by the risk/complexity of job) must include operations and maintenance participation as a minimum with additional health, safety, and technical disciplines as needed. The Team should, as required, be comprised of members associated with the Operations Safety Board (OSB).**

**VIII. ACTION STEPS (cont.)**

A. *Operations Line Management/Customer* (cont.)

4. Initiates Job Hazard Identification (cont.)

b. Under the leadership of the Operations Line Management/Customer requesting the work, conducts a health and safety hazards identification using the Health and Safety Hazard Identification methodology, including a job walkdown if necessary; found in Appendix D (Y10-012). The team will determine hazards, permits required, PMT requirements, and a Final Job Grade, based on equipment grade and hazard identification as input into the maintenance planning process.

3. Coordination of Maintenance Services/Job

a. Approves the Final Job Grade determination.

b. Completes the MJR indicating Job Grade determination (see Appendix E) (Y10-012)

c. Provides job priority.

**NOTE: In case of emergency maintenance, notifies the PSS and the responsible FMO Department Manager IMMEDIATELY. During off-shifts, the emergency information should flow through PSS and the MSS.**

d. Submits the MJR to the maintenance organization as work authorization with information necessary to determine appropriate level of job planning.

e. Under the leadership of customer and FM Planner/Supervisor, conducts a hazard analysis utilizing the information obtained from Y10-012. The team will identify job steps, hazards associated with each step, and controls/barriers to put into place to prevent worker injury/illness according to Procedure Y70-043.

f. Coordinates with the maintenance organization regarding the scheduled start date.

g. Supports the maintenance organization in execution of the job planning process in accordance with FMO Procedure Y10-35-008, *Planner's Guide.*

h.. Issues required permits, utilizing Y10-012, Y70-043, and Y70-525 procedures.

i. Provides work start approval sign-off on the job planning package where necessary.

j. Approves work scope changes.

k. Provides postmaintenance testing (PMT) requirements and approvals.

l. Ensures OSB review of Grades 1 and 2 jobs and other jobs as designated by the Operations Line Management/Customer.

**VIII. ACTION STEPS (cont.)**

B. *Work Planning Section*

1. Planning Specialist

a. Assists the planner in determining when value is added by exceeding the minimum plan requirements defined by the work control level.

b. Performs periodic walkdowns with planners to evaluate the implementation of this procedure.

c. Evaluates job packages as required by management and provides immediate feedback to planners on any findings or suggestions.

2. Planner

a. On a regular basis, reviews MJRs which are opened in the FMIS. Reviews the unplanned backlog for each crew code to which the planner is assigned.

b. Uses resources including, but not limited to, the Maintenance Importance Generator, customer input, and management direction to determine planning priority.

c. Verify that the MJR is valid and all entries are correct; contact the MJR originator or customer for clarification or if any changes are required.

d. Clearly defines the job scope with customer, per plant procedure Y10-012, *Hazard Identification Planning for Maintenance and New Work Tasks* to identify hazards and to establish expectations, requirements, and job boundaries.

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**CAUTION**
**Known Classified information <u>shall not be written down</u> on any job package forms**

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e. Assists the Operations Line Management/Customer to evaluate the scope of the job and determine associated hazards identified in accordance with Y10-012.

f. Using the instructions included in Appendix D, Attachment D2, complete the Job Planning Checklist as applicable.

g. Enter all planning information for the MJR into the FMIS.

**VIII. ACTION STEPS (cont.)**

B. *Work Planning Section* (cont.)

2. Planner (cont.)

**NOTE: The matrix found in Appendix I helps define the required elements of maintenance job packages based on hazard and complexity. Jobs that are Equipment Grades 1 or 2 require formal planning, hazard identification/analysis, and walkdowns. Jobs that are Equipment Grades 3 or 4 may be performed as minor maintenance, skill of craft, or standing work package after appropriate screening Y10-012. Detailed instructions for completing necessary forms and documentation are included in Appendix D, Attachment D4, *Instructions for Completing Job Package Instructions,* Appendix A, *Instructions for Completing Job Planning Checklist.* Information gained through the Job Hazard Identification process, and associated walkdowns, described in Y10-012, and Job Hazard Analysis, described in Y70-043, shall be utilized in the job package development**.

h. Develops job planning packages using familiarity with the equipment and its environment. Utilizes results of Y10-012 for required information as appropriate throughout planning process.

i. Using Walkdown Checklist (Appendix A, Attachment A1), walk down jobs, as needed, with the Line Management/Customer and other personnel so as to adequately plan the job.

j. Record any Any planning information obtained during the walkdown on the checklist, as well as the following:

(1) Nameplate Data: Equipment identification, property number, location, elevation, as well as labeling discrepancies identified and corrected.

(2) Interferences Identified: Structures, equipment, or components which may hinder safe working conditions in the area.

(3) Equipment/Tools
- Heavy-load lift/crane
- Scaffolding/ladders
- Rigging required
- Personnel protective equipment
- Temporary lighting
- Auxiliary Power

(4) Requirements
- Housekeeping
- General safety concerns
- Warning signs and barriers
- Confined space entry permit
- Electrical safety concerns identified
- Compliance issues

B. *Work Planning Section* (cont.)

2. Planner (cont.)

(5) Storage
- Combustible material authorization
- Flammable liquids and gases

(6) Security
- Permit to breach security/fire barrier
- Security-sensitive area entrance/exit

k. Verifies that all hazards, identified as a result of OSB action utilizing Y10-012, are analyzed in accordance with Y70-043, by an appropriate team whose makeup is determined by the Customer and the FMO Planner/Supervisor. The team will be led by FMO Planner/Supervisor.

**NOTE: IF the maintenance activity has the potential to emit dust, fumes, or vapors, THEN the activity may impact existing air permits.**

**NOTE: In most cases it is the responsibility of the Operations Line Management/Customer to obtain permits for the job.**

(1) IF the maintenance activity involves the excavation of earthwork, or the drilling or cutting into concrete surfaces,
THEN contacts the appropriate engineering department to obtain required permits and additional instructions to be included in the job package.

(2) IF the maintenance activity involves connection or reconnection to the plant storm and sanitary sewer systems,
THEN completes and secures approval of an Application for Connection form in accordance with Plant Procedure Y70-920, *Connections to Plant Storm and Sanitary Sewer Systems*.

(3) If the maintenance activity (1) entails renovations to existing surfaces (e.g., ceilings, floors, walls, insulation, etc.) or (2) is suspected of posing a hazard with respect to asbestos-containing materials (ACM),
THEN secures a required Industrial Hygiene evaluation for the presence of ACM unless documented evidence is available stating that no ACM would be encountered.

Include any required permits and precautions in accordance with facility asbestos abatement policies and procedures.

(4) When modifying exhaust systems or removing, replacing, or installing equipment, verifies the extent of impact on permits.

**NOTE: Some examples of equipment which may impact air permits are saws, lathes, storage cabinets for flammable materials, hoods, and spray-painting booths.**

**VIII. ACTION STEPS (cont.)**

B. *Work Planning Section* (cont.)

2. Planner (cont.)

**NOTE: To primary extraction, secondary extraction, and Tri-N-Octyl Phosphine Oxide (ToPo) systems in EUO require Fire Protection review and signature, when performing, welding, burning, grinding, or cutting work (Hotwork).**

(5) When the maintenance activity requires a Fire Hazard Evaluation to be performed: (1) initiates required requests for inspection and (2) initiates the obtaining of required permits.

l. Reviews the Interim Master Equipment data base for affected equipment, identifying information necessary to properly plan the maintenance activity. If any information is incorrect or missing, notifies the Planning Specialist for necessary corrective action.

m. Determines if the same or a similar problem has been identified before on this or identical equipment or problems/good practices from similar maintenance type activities (feedback/lessons learned).

n. Determines if an adverse trend is present (e.g., a piece of equipment has failed frequently, has excessive vibration, burns up bearings, etc.) and notifies FMO Engineering of the need for additional evaluation of any noted adverse trends.

o. IF the job meets the definition of Corrective Maintenance,
THEN includes a Repair History Data Sheet (Appendix F) in the job package.

p. Ensures Job Package Instructions contains instructions for "As found" and "As left" conditions when appropriate (e.g., calibrations, troubleshooting, trending, etc.)

**NOTE: Job Package filing requirements (e.g., folder, color, retention, etc.) are defined by the SSC Grade.**

q. Prints a hard copy of the MJR to be included in the job package.

r. Sends the job package to the Maintenance Supervisor for review and comment.

s. Incorporates comments or changes as necessary, and resubmits the job package, if applicable, to the Maintenance Supervisor.

t. Obtains Operations Management/Customer (including OSB Review as required) approval and submits the approved job package for scheduling.

u. Orders and stages the necessary materials/and or special tools for the maintenance job. Material and special tools should be identified by the MJR number, location noted in the package, and controlled by the planner.

**VIII. ACTION STEPS (cont.)**

B. *Work Planning Section* (cont.)

2. Planner (cont.)

v. Upon completion of the maintenance activity, reviews completed job packages in accordance with FMO Procedure Y10-35-006, *Completing Maintenance Job.*

w. Ensures that completed forms/documentation are routed to the appropriate personnel or files.

C. *Maintenance Supervisor*

1. Works with the planner, as needed, in developing the job package.

2. Reviews and signs the prepared job package, or returns the package to the planner for further development, including an explanation for improvement.

3. For any non-scope change revisions, single-lines all markouts in black ink, initials, and dates thechange.

4. For revisions that change job scope, returns to the planner.

15. Reviews and signs the completed job package in accordance with FMO Procedure Y10-35-006, *Completing Maintenance Job.*

6. Returns the job package or SWP cards to the planners after the maintenance job is complete.

D. *Planner—Job Package Revisions*

**NOTE: Whenever a job package is revised and tasks have been issued to supporting crafts and work control centers (WCCs), the tasks also require review for any new hazards possibly introduced, PMT changes, or changes that could require CM review.**

1. Obtains approval of job package revisions from the Maintenance Supervisor and the applicable planner and the customer when required, prior to implementation.

a. Makes required revision of job packages for "troubleshooting" if Grade 1 or 2 components and/or items are permanently replaced. Requires OSB review for USQD considerations.

b. When additional space is required for revision, uses the Job Package Instructions (Appendix D, Attachment D1).

**NOTE: Revisions to Job Package must be screened by the appropriate Operations/Customer for Configuration Management (CM) requirements and requirements of the OSB.**

2. Makes revisions to approved Work Instructions in accordance with Instructions for Completing Job Package Instructions (Appendix D).

**VIII. ACTION STEPS (cont.)**

D. *Planner—Job Package Revisions* (cont.)

3. Reviews each revision with the Maintenance Supervisor/Customer to ensure that the following steps are performed:

a. Job revision has been screened to determine if any additional hazards are introduced as a result of revision.

b. Determine if any additional revisions or documentation are required when working on ASME (American Society of Mechanical Engineers) components.

c. Revise equipment clearances as necessary by notifying the equipment owner.

d. Notify Radiological Control if RWP (radiation work permit) or ALARA concerns are identified or anticipated.

e. Notify security if a breach of security barrier is identified or anticipated, and if a Permit to Breach a Security Barrier(s) is required.

f. Notify the Fire Protection Coordinator if a breach of fire barrier is anticipated and if a permit is required.

g. Determine if any additional revision or documentation is required to comply with Plant Procedure Y10-204, *Executing Postmaintenance Testing*. If Documented/Formal PMT is required and not identified on the MJR by the customer, the planner should contact the customer for PMT requirements and initiate a PMT Control Form (Appendix E, Attachment E1).

(1) Deficiencies identified during postmaintenance testing should be documented and corrected on the original work request, on a new work request, or on another reporting system before the original work request is accepted as completed by operations.

(2) The original work request should reference any new work requests or other documents written to resolve these deficiencies.

h. Determine any impact on scheduling and work coordination.

i. Obtain approval of the QA/QC (Quality Assurance/Quality Control) representative, when required, either by signature or by noting verbal concurrence on the job package or on the Job Package Revision Form (Appendix G).

E. *Planner—Voiding the Job Package*

1. Voids job packages determined to be no longer required as follows:

a. Notifies operations Line Management/Customer as indicated on the MJR that the job package has been voided.

E. *Planner—Voiding the Job Package* (cont.)

b. Voids job package by (1) updating the FMIS to appropriate status and (2) inputs comments, stating reason for voiding.

F. *FMO Planning Manager—Planning Forms*

Planning form (3-14) are controlled and issued to the FMO Planning Specialist by the FMO Planning Manager and should be implemented in coordination with Y10-012 requirements.

1. Maintenance Job Request (MJR)
2. Y-12 Plant NEPA/NHPA Checklist (when used)
3. Postmaintenance Test Control Form (when used)
4. Job Package Instructions (when used)
5. Walk-Down Checklist (when used)
6. Job Planning Checksheet (when used)
7. Repair History Form (when used)
8. Job Package Revision Form (when used)
9. Spare Parts/Material Record Form (when used)
10. Standing Work Package (SWP) Data Sheet (when used)
11. Job Package Tracking Form (when used)
12. Minor Maintenance Form (when used)
13. Job Package Comment Form (when used)
14. Job Hazard Analysis Form (Y70-043) (when used)
15. Lost Job Package Closure Approval Sheet

## IX. ADMINISTRATION

A. A hard copy of this procedure shall remain in the Y-12 Plant Procedures representative's office and another copy in the FMO Procedures Representative's work area. The master copy of this procedure is an electronic disk which is kept by the FMO Procedures coordinator.

## X. REQUIRED READING

None

## XI. APPENDIXES

A. *Instructions for Completing Walkdown Checklist*

B. *Skill of Craft Planning Guidelines*

C. *Minor Maintenance Planning Guidelines*

D. *Planned Job Package Guidelines*

E. *Instructions for Completing Postmaintenance Test Control Form*

F. *Repair History Form*

G. *Job Package Revision Form*

H. *Acronyms and Definitions*

I. *Worker Hazard/Job Complexity Matrix*

Appendix A (Page 1 of 5)
INSTRUCTIONS FOR COMPLETING WALKDOWN CHECKLIST

**NOTE: Information resulting from Operations Hazard/Permit Identification Walkdowns in accordance with Y10-012 and hazard controls from Y70-43 Anaylsis shall be utilized, where applicable, in completing the Job Planning Checklist**.

## A. Nameplate Data Information

1. During initial job walkdown, verify that a Deficient Material Condition Tag has been applied and the MJR number on the tag matches the MJR number on the job package. (See Section II.A.3.e).

2. Utilize the Walkdown Checklist when appropriate to document the information identified on the nameplate of the component. Compare this information with the information on the appropriate drawing for the system.

3. If nameplate information is not available, review vendor manual, purchase order, drawings, etc., where this information is documented; then complete checklist accordingly.

4. If additional space is required to document all information available, use reverse side of walkdown checklist.

## B. Requirements

1. Complete all applicable entries.

2. Describe in writing the type of rigging required (if any).

3. Identify in writing if any support crafts are required.

4. Describe in writing how component is installed.

5. Identify in writing equipment type.

6. Document the fastener sizes associated with component.

7. During the walkdown of the job, identify the scope of the work to be performed that clearly defines the operations line management/customer's requirements and sets the boundaries of work that is authorized under each work package. Utilize Appendix D, Y10-012, and ensure agreement with scope of Y10-012. Include any unique identifiers such as equipment identification numbers, room numbers, deficiency tag numbers, etc.

## C. Operations Requirements

1. Identify on the checklist hold off requirements, power supply, and other SSC that may be affected by the hold off.

2. Contact Operations/Line Management/Customer and identify any comments or concerns with taking item out of service.

**Appendix A (Page 2 of 5)**
**INSTRUCTIONS FOR COMPLETING WALKDOWN CHECKLIST**

**C. Operations Requirements** (cont.)

3. Document any special conditions or time restrictions imposed as a result of operations, environmental impact, technical specifications, or regulatory requirements governing the item.

4. Enter name, badge number, and date when walkdown checklist is completed.

## Appendix A (Page 3 of 5)
## WALKDOWN CHECKLIST

Revision No.: 1
Revision Date: 2/22/95

| PROPERTY NO. | LOCATION | ELEVATION | MJR NO. |
|---|---|---|---|
| | | | |

Job scope_____
_____

**EQUIPMENT INFORMATION**

Type/Installation

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Equipment Type (check one) | Valve | Motor | Filter | Pump | Door | Fan | Other(List) | N/A |
| Installation Type (check one) | Flanged | Welded | Brazed | Screwed | Bolted | Other (List) | | N/A |

Size of the Following

| | | | | | |
|---|---|---|---|---|---|
| Casing Nuts | | Bonnet Nuts | | Gland Nut | |
| Flange Nuts | | Coupling | | Bolt/Nuts | |
| Bearing Size | | Foundation Bolt | | Other Fasteners | |
| | | Bearing Housing Bolts/Nuts | | Clamps | |

**NAMEPLATE DATA INFORMATION**

| | | | | | |
|---|---|---|---|---|---|
| Manufacture | | | Serial No. | | |
| Model No. | | Type | | Figure | |
| Phase | | Frame | | Size | |
| Voltage | | AMPS | | Service Factor | |
| Pressure | | Horsepower | | RPM | |
| Temp | | Drawing | | Insulation | |

**OPERATIONS REQUIREMENTS**

LOCK-OUT TAG-OUT REQUIREMENTS YES ☐ NO ☐

MECHANICAL ☐ ELECTRICAL ☐ HIGH VOLTAGE ☐

Power Supply_____

Other Components/Equipment Affected by Hold-Off:_____

Operations Comments:_____

Special Conditions/Time Restrictions:_____

**Appendix A (Page 4 of 5)**
**Attachment A1 - 1**
**WALKDOWN CHECKLIST**

**Sample: Form was current at time of Procedure issue. FMO Planning Manager controls and issues current forms.**

**GENERAL REQUIREMENTS**

Equipment/Tools Required (Indicate by ✓)

| | | | | | |
|---|---|---|---|---|---|
| Scaffolding | □ | Heavy-load lift/crane | □ | Personnel Protective Equipment | □ |
| Ladders | □ | Temporary Lighting | □ | Rigging required | □ |

Additional information (type rigging, tools, etc.)

_____
_____

Support Required (indicate by ✓)

| | | | | | |
|---|---|---|---|---|---|
| Outage | □ | Insulation Removal | □ | RWP | □ |
| Machining | □ | Warning Signs/Barriers | □ | OSWP | □ |
| Welding/Cutting | □ | Bolting Material degraded | □ | Confined Space Entry Permit | □ |
| Labeling | □ | Electrical Safety concerns | □ | Excavation/Penetration Permit | □ |
| JHA | □ | Fire Wall Penetrations | □ | Connection Permi | □ |
| PMT | □ | Configuration Management | □ | Asbestos Controls | □ |
| Housekeeping | □ | Job Site Inspection | □ | Waste Disposal Permit | □ |
| Davis-Bacon | □ | NEPA/NHPA | □ | Weld Inspection | □ |

Additional information (types of waste anticipated, other special permits, etc.)

_____
_____

Interferences Identified: (Structures, equipment, etc.)

_____
_____

Storage (Indicate by ✓)

Combustible Material Authorization □ Flammable Liquids and Gases □

Security (Indicate by ✓)

Permit to Breach Security/Fire Barrier □ Security-Sensitive Area Entrance/Exit □

**Walkdown Performed By:**

| Name/Signature | Organization | Badge | Date |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

**Appendix A (Page 5 of 5)**
**Attachment A1 -1 (cont.)**
**WALKDOWN CHECKLIST**

**Revision** **1**
**Revision Date** **9/24/97**

| **WALKDOWN EVALUATION** |
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| Comments: |
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**Appendix B (Page 1 of 5)**
**SKILL OF CRAFT MAINTENANCE PLANNING GUIDELINES**

**NOTE: Information obtained in conducting Job Hazard Identification in accordance with Y10-012 shall be used in making the Skill of Craft classification decision.**

A. The job package for SOC Maintenance jobs shall be prepared using one of the following methods:

1. MJR

   a. The MJR shall be used to document the operations/line management/maintenance supervisor/planner decision to categorize a SOC Maintenance Job in accordance with hazard identification methodology of Y10-012.

   b. Clearly define the job scope to identify customer requirements and to establish job boundaries.

   c. Verify with the customer that all information on the MJR is correct.

   d. Process the MJR.

   e. Issue the SOC Maintenance Job via MJR or SOC/SWP card.

   f. There are no filing requirements for SOC Maintenance packages that contain only a MJR.

   **NOTE: Above items (e.) and (f.) permit SOC jobs such as PC maintenance, simple plumbing, hanging pictures, etc.**

   g. Work, meeting the following criteria, shall not be classified by the planner as Skill of Craft (SOC) Maintenance and processed by only a MJR. Some additional planning including a formal work package, in some cases, is required before the job can be issued to the maintenance supervisor.

      (1) Jobs meeting the criteria utilizing the completed Appendices C and D from Y10-012.
      (2) Quality Review required per MJR.
      (3) Asbestos/beryllium work environment.

2. Standing Work Package (SWP) should be developed when the customer authorizes multiple SOC jobs to be worked utilizing a single package.

   a. The work package developed for each must contain:

      (1) MJR: The customer must authorize the charging of multiple SOC jobs under one MJR. The planner must ensure that jobs assigned to SWPs are only those that apply to the MJR. The SWP MJR must meet criteria in A.1 above.

**Appendix B (Page 2 of 5)**
**SKILL OF CRAFT MAINTENANCE PLANNING GUIDELINES (cont.)**

(2) Job Planning Checksheet (Section A): All items on Section A of the Job Planning Checksheet must be evaluated. Add any other information in the comments sections that will add value or clarify a decision. (Appendix D, Attachment D2)

(3) Job Package Instructions:

**NOTE: This SWP package authorizes work only on those SSCs identified in the job scope on the SWP Request card.**

**Job Scope:** Clearly define the job scope on each task to identify customer requirements and to establish job boundaries. The job scope shall be entered on the "Description of Work Requested" on the SWP REQUEST card.

**Prerequisites:** All prerequisites apply to each SWP job issued such as "Discuss job requirements and safety issues with the craft before each assignment". Each job must be evaluated against the grading as determined by Y10-012 and Job Hazard Analysis per Y70-043, if the evaluation discovers any other possible risks to the worker or job complexity changes mandates planning as Grade 2. Use the SWP guides that can be obtained from your planning specialist to help develop prerequisites.

**EXCEPTIONS:** All jobs assigned to a SWP must be screened to the listed exceptions along with any other exception that is unique to the individual SWP. If the job falls into any of the exceptions categories, the job cannot be worked as Skill of Craft. A Minor Maintenance or a Planned Job Package must then be developed using screening criteria listed in Appendixes C and D.

**Precautions:** List all precautions that are unique to each SWP, in addition to those statements that apply to all SWPs.

**Work Instructions:** Clearly define the type of jobs that can be worked under each developed SWP. List the type of jobs that can be worked under the individual SWP, such as troubleshooting, relamping, repairing switches, changing steam traps, tightening packing on valves, and various other type of activities. Be as specific as possible but don't attempt to "cookbook" the jobs that can be worked.

**SWP Data Sheet:** All jobs worked under a SWP must be logged by the planner on the SWP Data Sheet with all spaces filled in or n/a. (Appendix B, Attachment B.1).

The original SWP will be retained by the planner and a copy issued to the supervisor for use in the field. Each job must be reviewed by planning and a SWP card/paper issued for each job, a copy of the SWP is not issued each time a SWP job is issued. It is the responsibility of the maintenance supervisor to return the SWP card/paper to the planner so the job status can be entered on the comment sheet and that job closed out on the SWP.

**Appendix B (Page 3 of 5)**
**SKILL OF CRAFT MAINTENANCE PLANNING GUIDELINES (cont.)**

Additional documentation to be included with the SWP card, if it adds value or clarity:

(1) JHA form (Y70-043).
(2) Manufacturer's data.
(3) MSDS sheet. A good example is the AC&R refrigerant MSDS.
(4) All permits that pertain to the particular job.

Attach any required document to complete job to SWP card/paper (JHA, OSWP, PMT form, RWP, etc.).

The SWP Package shall be filed for one year from the date it is closed.

**NOTE: A job which does not qualify as SOC Maintenance may have tasks written against it which are SOC Maintenance. Example: Repair of a steam line that has asbestos insulation is not SOC Maintenance, but the task for carpenters to build scaffolding may be SOC Maintenance.**

**Appendix B (Page 4 of 5)**
**Attachment B1 - SWP Data Sheet (cont.)**

Sample: Form was current at time of Procedure issue. FMO Planning Manager controls and issues current forms.

| | | | | | | | MJR No./SWP Title | | |
|---|---|---|---|---|---|---|---|---|---|
| Job No. | MJR No./ Work Order No. | Date | Requester | Bldg. | CM Review | Work Scope/P.E.Initials | Permits ** | *Work Start Approval Sign/Date | Man Hours |
| | | | | | | | | | |
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* Signature required for Grade 1, 2, 3, and RAD areas.
** N/A if not required.

**Appendix B (Page 5 of 5)**
**Attachment B2 - SWP Data Sheet (cont.)**

**Sample: Form was current at time of Procedure issue. FMO Planning Manager controls and issues current forms.**

| SWP COMMENT SHEET | | | |
|---|---|---|---|
| **Job No.** | **MJR No./ Work Order No.** | | **MJR No./SWP Title** |
| | | | |
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**Comment Sheet Page Number _____**

**Appendix C (Page 1 of 2)**
**MINOR MAINTENANCE PLANNING GUIDELINES**

A. A Minor Maintenance Work Instruction Form (Appendix C, Attachment C1) shall be used. A package that is developed using this form should contain the following:

1. Copy of the MJR. (Verify with the customer that all information is correct).

2. Clearly define the job scope to identify customer requirements and to establish job boundaries.

3. Minor Maintenance Work Instruction Form: Appendix C, Attachment C.1. All items on the Minor Maintenance Work Instructions Forms must be evaluated. Explain in the comment section any information that will add value or clarify a decision.

4. Include a JHA form, Y70-043, Manufacturer's data, etc. to the Minor Maintenance job if it adds value or clarity.

5. Exceptions: All Minor Maintenance jobs must be screened against the listed exceptions along with any other exceptions unique to the job. If the job falls into one of the exceptions categories, an individual (full) job package must be developed for the job.

   a. Jobs meeting the criteria utilizing the completed appendices C and D from Y10-012.
   b. Quality Review required per MJR.
   c. Asbestos/beryllium work environment.

6. Packages that contain the Minor Maintenance Work Instructions form are to be retained a minimum of 3 months. Permits such as OSWP require a one year retention, and other items that may add value to future jobs may necessitate keeping job packages longer than the minimum requirements.

## Appendix C (Page 2 of 2)
## Attachment C1 - MINOR MAINTENANCE WORK INSTRUCTIONS (cont.)

**Sample: Form was current at time of Procedure issue. FMO Planning Manager controls and issues current forms.**

**EQUIPMENT GRADE** 3 ☐ 4 ☐ **Job Classification**_____ **MJR No.**_____

**JOB SCOPE**_____
_____

| **HEALTH AND SAFETY** | **YES** | **NO** | **DATE** | **COMMENTS** |
|---|---|---|---|---|

**NOTE: Upon completion of maintenance job planning, compare hazards against the original Y10-012 assessment.**

| | | | | |
|---|---|---|---|---|
| FOLLOW-UP HAZARD SCREENING | [ ✓ ] | [Specify] | _____ | _____ |
| JOB HAZARD ANALYSIS | [ ] | [ ] | _____ | _____ |
| **LOCKOUT/TAGOUT** | [ ] | [ ] | _____ | _____ |
| [ ] PERMITTED | [ ] | NONPERMITTED | | |
| **PERMITS** | | | | |
| _____ | [ ] | [ ] | _____ | _____ |
| _____ | [ ] | [ ] | _____ | _____ |
| **SPECIAL REQUIREMENTS** | | | | |
| _____ | [ ] | [ ] | _____ | _____ |

**JOB PACKAGE REVIEW**

| | | | |
|---|---|---|---|
| PLANNER/ESTIMATOR (Signature)_____ | BADGE NO._____ | DATE_____ |
| ELECTRICAL REVIEW (Signature)_____ | BADGE NO._____ | DATE_____ |
| FMO SUPERVISOR (Signature)_____ | BADGE NO._____ | DATE_____ |
| CUSTOMER (Signature)_____ | BADGE NO._____ | DATE_____ |
| CONFIG. REVIEW (Signature)_____ | BADGE NO._____ | DATE_____ |
| INDUSTRIAL SAFETY (Signature)_____ | BADGE NO._____ | DATE_____ |
| **WORK START APPROVAL:** CUSTOMER_____ | BADGE NO._____ | DATE_____ |
| APPROVAL DURATION: JOB [ ] TASK [ ] | SHIFT [ ]FROM _____ TO _____ | |

**PREREQUISITES:**_____
_____

**PRECAUTIONS:**_____
_____

**JOB INSTRUCTIONS:**_____
_____
_____

| **POSTMAINTENANCE TESTING** | **YES** | **NO** | **DATE** | **COMMENTS** |
|---|---|---|---|---|
| DOCUMENTED/FORMAL | [ ] | [ ] | _____ | _____ |
| CHECKOUT/VERIFICATION | [ ] | [ ] | _____ | _____ |

**POST JOB SITE INSPECTION/JOB COMPLETION**

CRAFTSPERSON (INITIALS)_____ BADGE_____ DATE_____ (INITIALS)_____ BADGE_____ DATE_____
CUSTOMER_____ BADGE_____ DATE_____
(CUSTOMER'S SIGNATURE OR WRITE IN INDIVIDUAL'S NAME NOTIFIED)
FMO SUPERVISOR (Signature)_____ BADGE_____ DATE_____

**Appendix D (Page 1 of 24)**
**PLANNED JOB PACKAGE GUIDELINES**

Planned Job Package - Job Packages that are prepared for complex and or High Risk maintenance jobs that require written instructions, checklist, and other documentation.

A. All maintenance jobs that fall into one of the following categories shall have a (full) planned package developed for the job.

1. Jobs meeting the criteria utilizing the completed appendices C and D from Y10-012. (Grades 1 & 2 and value added for Grades 3 & 4 jobs).

2. Quality Review required.

3. Asbestos/beryllium work environment.

B. Planned Job Packages contain as a minimum:

1. MJR - With all information validated by customer including results of hazard identification performed in accordance with Y10-012.

2. Job Planning Checksheet - (Appendix D, Attachment D1) items must be evaluated. All items must be completed either with entry or N/A.

3. Job Package Instructions - (Appendix D, Attachment D4) Instructions that are provided to the workers to accomplish a task. Instructions may be step-by-step with check off required on each step for High Risk/Complex tasks (e.g., SCIs) or Guideline Generic type instructions for Low Risk/ Simple tasks. A balanced combination of Skill of Craft, Worksite Supervision, and Written Guidance produces the appropriate rigor to complete a maintenance task safely and efficiently.

4. Material List - A list that contains description of required material, quantity, and location of material required to complete maintenance tasks. If no material is required, indicate on Job Planning Checksheet Comments.

5. Include other forms or documentation such as JHA from (Y70-043), required permits, PMT, Repair History, Configuration Management form, and other items that add value to the execution of the job.

C. The filing requirements for these packages are addressed in Y10-35-006, *Completing Maintenance Jobs*.

**Appendix D (Page 2 of 24 )**
**Attachment D1 - INSTRUCTIONS FOR COMPLETING THE JOB PLANNING CHECKLIST (cont.)**

**Discussion**

The Job Planning checksheet shall be used by the planner to ensure that all obtainable information pertaining to work activity has been reviewed and documented.

**NOTE:**

- **Work activities determined by the planner to be SOC maintenance may not require a Job Planning Checksheet. (See Appendix B)**

- **Indicate the MJR number on the appropriate line (upper right) of Attachment D2 of this appendix.**

**A.1. Equipment Grades**

1. Grade 1:

   All MJRs written for this grade shall require that all sections of the Job Planning Checksheet be evaluated. All required items must be completed, including the resolution of USQDs as appropriate. Other items may be completed as they add value to the execution of the job.

2. Grade 2:

   All MJRs written for this grade shall require that all sections of the Job Planning Checksheet be evaluated. All required items must be completed, including the resolution of USQDs as appropriate. Others may be completed as they add value to the execution of the job.

3. Grade 3:

   If the job requires a planned Job Package, all sections of the Job Planning Checklist must be evaluated. All required items must be completed and dated. Others may be completed as they add value to the execution of the job.

4. Grade 4:

   If the job requires a planned Job Package, all sections of the Job Planning Checklist must be evaluated. All required items must be completed and dated. Others may be completed as they add value to the execution of the job. If an entry is not required, check No or N/A on the checklist as appropriate.

**A.2. Final Job Classification**

1. Final Job Classification will be determined by customer utilizing Y10-012.

1. Document Final Job Grade by circling the grade number before proceeding with planning process.

**Appendix D (Page 3 of 24)**
**Attachment D1 - INSTRUCTIONS FOR COMPLETING THE JOB PLANNING CHECKLIST (cont.)**

**A.3 Minimum Level of Planning**

1. Compare equipment grade against Final Job Grade from Y10-012.

2. The highest risk level (1 being highest) from equipment grade or Final Job Grade will determine minimum level of planning.

**B. Section A: <u>Health and Safety</u>**

**Note: This section shall be completed for <u>all</u> equipment categories.**

1. Follow-up Hazard Screening (FHS)

   Planner shall use the Job Hazard Identification information determined using Y10-012 and provided by the customer, and the Follow-up Hazard Screening to further clarify the need for an additional Job Hazard Analysis (JHA) using Y70-043 and who the participants of the JHA should be.

2. List the names of all personnel who participated in the multi-organizational walkdown.

3. Document JHA results and recommendations on JHA Form.

4. Job Hazard Analysis results and recommended controls should be incorporated into the Job Package

   **NOTE: All jobs with final job classification of grades 1 or 2 require a formal hazard assessment.**

   **NOTE: Standard industrial safety practices (e.g., wearing safety glasses, steel toed shoes, goggles, etc.) should be covered in crew briefings.**

**Appendix D (Page 4 of 24)**
**Attachment D1 - INSTRUCTIONS FOR COMPLETING THE JOB PLANNING CHECKLIST (cont.)**

**B. Section A. Safety and Health (cont.)**

5. Hoisting and Rigging

   a. The lead planner will review the Maintenance Job Request (MJR) and determine the need for hoisting and rigging activities.

   b. If hoisting and rigging is required, the hoisting and rigging planner will categorize the lift as:

      (1) Critical - Parts, components, assemblies, or lifting operations designated as such because the effect of dropping, upset, or collision of items could:

         (a) Present a potentially unacceptable risk of personnel injury or property damage.

         (b) Result in significant release of radioactivity or other undesirable conditions.

         (c) Cause undetectable damage resulting in future operational or safety problems.

         (d) Cause significant work delay.

         (e) A lift should also be designated as Critical if the load requires exceptional care in handling because of size, weight, multiple cranes required to make lift, or other unusual factors.

         **Note: Categorization of Critical Lifts will involve input from the affected line organization, General Supervisor, Hoisting and Rigging committee, and the Hoisting and Rigging Manager.**

      (2) Pre-Engineered Production Lifts - repetitive, production-type lifting operation, independent of the nature of the load to be lifted, in which the probability of dropping, upset, or collision is reduced to a level acceptable to the responsible manager by preliminary evaluation, specialized lifting fixtures designated, detailed procedures, operational-specific training, and independent review and approval of the entire process.

      (3) Ordinary Lifts - Are any lifts not designated as a Critical Lift, or Pre-Engineered Production Lift.

   c. The planner shall develop a lift plan for:
      (1) All lifts requiring the use of a mobile crane.
      (2) All lifts to and from a roof.
      (3) All CRITICAL lifts.

   d. The planner shall ensure that all required approvals are documented.

6. List all special contamination control requirements in the comments section (Radiation, biological, etc.)

**Appendix D (Page 5 of 24)**
**Attachment D1 - INSTRUCTIONS FOR COMPLETING THE JOB PLANNING CHECKLIST (cont.)**

**B. Section A: Health and Safety (cont.)**

7. Operations Safety Board (OSB) review requirements should be documented here.

8. Other - Additional H&S requirements should be listed here.

9. Lockout/Tagout

   Lockout/Tagout block, identify the energy isolation as *Permitted* or *Non-permitted* (Single Source).

10. If electrical hotwork is required, identify under "other" in Section A. Also, under Appendix B, B1.

**C. Section A: <u>Permits</u>**

1. The planner shall review the job using Y10-012 and identify any permits that are required, using information developed from Job Hazard Analysis per Y70-043. The permits numbers must be included in comment section of the Job Planning Checklist.

| | | |
|---|---|---|
| a. | Lockout/Tagout | Procedure Y73-107 |
| h. | Power Dist. Work Permit | Procedure MA-102 |
| c. | Operations Safety Work Permit | Procedure Y70-525 |
| d. | Confined space entry | Procedure Y70-750 |
| e. | Radiation Work Permit | Procedure Y72-122 |
| f. | Beryllium Work Permit | Procedure SH-201-PD |
| g. | Excavation/penetration | Procedure SH-173-PD |

**NOTE: If the job requires earthen drilling (i.e., electrical pole installation/replacement, fence post installation, etc.) the planner shall contact RadCon for instructions to be included in work instruction of job package.**

h. Asbestos/ceramic fibers Procedure SH-177-PD

i. Waste disposal Procedure Y70-903

j. Hot Work Plant Procedure Y70-255

(1) Use Y10-012, Appendix C to determine high risk areas that require Fire Protection Engineering (FPE) review.
(2) If job requires FPE review, note in comments section of Job Planning Checklist.
(3) If job requires welding, note the Comments Section, Weld Inspection Requirements.

k. Storm/sanitary sewer cond. Plant Procedure Y70-920

**Appendix D (Page 6 of 24)**
**Attachment D1 - INSTRUCTIONS FOR COMPLETING THE JOB PLANNING CHECKLIST (cont.)**

**C. Section A: Permits (cont.)**

l. Y-12 Site Fire Barrier ProgramPlant Procedure Y70-257

m. Other

**D. Section A: Other Requirements**

1. NHPA Assessment Required: The Planner shall evaluate the job to determine NHPA requirements in accordance with the programmatic agreement for management of the Historic and Cultural Properties at Oak Ridge.

2. NEPA Assessment Required: The planner shall evaluate job to determine NEPA requirements in accordance with Plant Procedure Y70-915, *NEPA Review and Compliance*.

3. Labor Standards Assessment Required: The planner shall evaluate the job to determine if the job is a construction type activity as defined by the Davis-Bacon Act. If the job is a construction type activity and the cost of construction materials and field labor exceeds $2,000, the job must be submitted to the Y-12 Site Labor Standards Coordinator for review. Use "Lockheed Martin Energy Systems Guidelines for Labor Standards Determination for Davis-Bacon Non-Covered Work" to determine if a formal labor standards review is required. Submit a "Labor Standards Review Request" via the Planning Specialist for those jobs for which there is doubt about "covered" or "non-covered".

   a. Some examples of jobs requiring review are:

| | | | |
|---|---|---|---|
| Reroofing | Upgrades | Alterations | Painting |
| Paving | Replacing Systems | Modifications | Repair |

   b. For those jobs that are of a construction type (painting, modification, alteration, upgrade, project, etc.) and the cost of labor and materials is less than $2,000, check NO on the Job Planning Checksheet and mark comment section < $2,000. (Reference Lockheed Martin Energy Systems Guidelines for Labor Standards Determination).

**NOTE: Maintenance jobs shall not be subdivided to eliminate the Davis-Bacon Act Requirements.**

4. Configuration Management Requirements: All planned and/or controlled alteration to permanent SSC (includes improvements, upgrades, temporary modifications, and replacement of parts/components that are not like-for-like replacements) shall be reviewed in accordance with the Configuration Management Program. The planner shall ensure that an applicability assessment is performed in accordance with Plant Procedure Y15-001INS, *Y-12 Guidance for Grading SSCs*, Y10-187, *Integrated Safety and Change Control Process*, and Y10-153, *Temporary Modification Control*. Any change requests must be reviewed and approved by Operational Safety Board.

5. Operations Manager/OSB action resolution of USQDs in accordance with Y70-809.

**Appendix D (Page 7 of 24)**
**Attachment D1 - INSTRUCTIONS FOR COMPLETING THE JOB PLANNING CHECKLIST (cont.)**

**E. Section A: Postmaintenance Testing**

1. Postmaintenance Test (Documented/Formal or Checkout/Verification as required by FMO Procedure Y10-204, *Postmaintenance Testing (PMT).* PMT requirements are determined by the customer.

2. Customer will evaluate the need for the type of PMT and enter this in the MJR. The customer will specify the PMT requirements and acceptance criteria to the planner, executing post-maintenance testing per Y10-204. Planner should work closely with the customer to help determine the type of PMT required to ensure that the SSC was repaired correctly and of there is a need to collect any documentation and help develop a Documented PMT. Planner will develop a PMT test package during the preparation of the work package.

3. Any revision to Job Package requires review of PMT requirements.

**NOTE: All maintenance jobs require formal as defined by walkdown in Y10-012 or informal postmaintenance testing as determined by the Maintenance Supervisor. Informal postmaintenance testing requires documented acceptance, sat - unsat - date - initials of performer (reference Y10-204).**

**F. Section A: Job Package Review**

1. Using approved estimating standards, the planner shall estimate crew size and work-hours required to perform job. Enter estimates, signature, badge number, and date on the Job Planning Checksheet.

2. The Maintenance Supervisor shall review the job package to determine if the planning is adequate for job execution. Enter signature, badge number, and acceptance date on the Job Package Signature Page. This review should take place early in the planning phase to prevent any delays in completing the job. If the Walkdown Checklist, Appendix A, Y10-35-008, or the Detailed Screening Question, Y10-012, or Job Hazard Analysis, Y70-043, indicates electrical work or electrical LO/TO requirements, this review will verify the adequacy of planning.

3. A job package that contains electrical work shall have an electrical review to determine if the planning is adequate for job execution prior to being issued. This review shall be performed by an individual with electrical background (electrical planner, electrical engineer, electrical supervisor, etc.). Enter signature, badge number, and acceptance date on the Job Planning Checksheet.

   a. The electrical review will consist of a discussion of the job with the planner that prepared the package (see References II.A.2.e-f, II.A.3.m).

      (1) Is a LO/TO required and does package concur?
      (2) Does the package indicate the hold point for the LO/TO?
      (3) Do the written electrical instructions in the package provide enough information to complete the job?
      (4) Are the precautions and prerequisites appropriate?
      (5) Is the work in the package "on or near"?

**Appendix D (Page 8 of 24)**
**Attachment D1 - INSTRUCTIONS FOR COMPLETING JOB-PLANNING CHECKLIST (cont.)**

**F. Section A: Job Package Review (cont.)**

b. The review shall require a walkdown if:

(1) The work is above 600 VAC.

(2) The work is "on or near."

c. Evaluate Low Voltage (LV) electrical work to determine when High Voltage (HV) energy isolation should be considered:

(1) Is electrical isolation required in order to avoid performing work "on-or-near" energized electrical components.

(2) Determine if low-voltage isolation points are available which can eliminate the "on-or-near" situation.

(3) If low-voltage isolation is not possible to eliminate the "on-or-near" situation, determine the high-voltage isolation points which can be used. (Note: For this step, consult with the Y-12 Power Operations Coordinator).

(4) For each high-voltage isolation point, evaluate the health, safety, and environmental impacts of the isolation.

(5) If increased hazard would be introduced by high-voltage isolation, discuss with the work supervisor to determine if the job is to be worked "on-or-near" energized electrical components using proper procedures and PPE.

(6) If high-voltage isolation is to be used, indicate this on the Job Planning Checklist and note that the supervisor is to contact the Power Operations Coordinator.

**G. Section A: Special Requirements**

1. The planner shall determine if any of the following special requirements apply:

a. Special tools/material - Special tools are tools that are not normally included in the craft person's toolbox. Examples are: non-sparking tools, torque wrenches, metric tools, etc. List any special material requirements. Examples: ET&I testing required, calibrated torque wrench.
b. Certification requirements - Equipment certifications, planner must include specifics when completing this item.
c. Qualifications requirement - Area/Equipment personnel training on SSCs defined in Facility Authorization basis. Qualified personnel are documented in the Training Management System (TMS).
d. Is a coded pressure vessel involved? If yes, continue with item (1) below;

**Appendix D (Page 9 of 24)**
**Attachment D1 - INSTRUCTIONS FOR COMPLETING JOB-PLANNING CHECKLIST (cont.)**

**G. Section A: Special Requirements (cont.)**

(1) If the job requires welding, will the weld involve repair/alteration to the coded pressure vessel and/or directly attached parts?

(2) A properly executed "traveler" including Authorized Inspector (AI) approval, and "hold-point" identification for Equipment Testing & Inspection (ET&I) and AI.

(3) Prior to use, all material shall have ET&I Receipt Inspection Forms, Stores Report, and Material Test Report completed and attached.

(4) ET&I shall observe any material marking transfers.

(5) Other (used for any other items to be included in job package).

(a) Plant air
(b) Instrument air
(c) Breathing air
(d) Elevated work surfaces
(e) Other

**H. Section A: Job Package Includes**

**NOTE: This section shall be used by the planner to ensure that all required information needed to execute job is included.**

1. Job Instructions - Job Package Instructions should contain job steps as determined by the complexity and risk of the work. The job steps can be as simple as generic type instructions or as complex as step-by-step sign- off instructions. Step-by-step with sign off instructions required for Grades 1 and 2.

2. Repair History Form (Repair History requirements determined by customer).

3. Materials List and location - A material list and location must be included in all packages that require material.

4. Procedures or detailed step-by-step work instructions with step sign-off required for Grades and 4 as applicable - Packages shall contain procedure references and guidance as required by the complexity and risk of the work.

5. Certified for Construction (CFC) drawings (required for Grade 1 modifications).

**Appendix D (Page 10 of 24)**
**Attachment D1 - INSTRUCTIONS FOR COMPLETING JOB-PLANNING CHECKLIST (cont.)**

**H. Section A: Job Package Includes (cont.)**

6. Technical Manual - Use technical manual whenever available to develop work per instructions.

7. QC requirements - Supplied by customer doing job initiation.

**NOTE: If QA/QC requirements are identified on the MJR, obtain specific requirements from customer and include them in the job package.**

8. Vendor data - Technical manuals, vendor drawings, operating manuals should be identified in the Job Package with the location noted in the comment section. Requirements such as torque values, operating pressure, output valves, PM requirements, PMT requirements, etc., should be included in the job package instructions.

**I. Section B: Job Package Review**

1. Process System Engineer or designee, as appropriate, shall review package to verify configuration control in accordance with Y10-187 or temporary modification in accordance with Y10-153, and as required by the facility, sign, and date Job Planning Checklist (Section B). Configuration control field must be marked either YES or NO.

2. Technical Subject matter experts as required by the scope of maintenance work to be performed in the job package must review and sign indicating a technical adequacy of work planning and controls. Field must be marked either Yes or No.

3. Planner shall sign package indicating that job is planned, materials received and staged, and job is ready to obtain Plant conditions.

4. Operations Manager/Management signature indicates that the job package has been reviewed and work is authorized in accordance with job plan.

5. Maintenance Coordinator shall review job package to ensure that job can be worked as planned, permits identified and signature indicates that Plant conditions have been set.

**J. Section C: Work-Start Approval**

1. The Maintenance Supervisor shall obtain Work-Start approval on all jobs which authorizes the release of a facility or equipment for the execution of maintenance work.

2. Operations Manager/Management signature indicates work start approval for all work in nuclear facilities. Operations Management/designee approval is required for balance of plant.

**Appendix D (Page 11 of 24)**
**Attachment D1 - INSTRUCTIONS FOR COMPLETING JOB-PLANNING CHECKLIST (cont.)**

**K. Section D: Job-Site Inspection**

1. Maintenance Supervisor/Maintenance Planner signature (craftperson utilization as required) completes this section for all jobs. All excess materials, scrap, and tools used during the execution of a job must be removed from the jobsite before the job can be returned to the customer as complete. This signature is a reminder to help ensure that the jobsite has been cleared of anything that was created or brought to the jobsite during the execution of the job. This initial also indicates that the job requirements have been completed.

2. Operations line management/customer completes this section for all Nuclear Facilities Grades 1, 2, and 3 jobs; it may be used for Grade 4 jobs if it adds value or if the customer requests to inspect the job site prior to closure of the maintenance job.

**Appendix D (Page 12 of 24)**
**Attachment D 2 - JOB PLANNING CHECKLIST (cont.)**
**Sample: Form was current at time of Procedure issue. FMO Planning Manager controls and issues current forms.**

JOB PLANNING CHECKLIST

MJR NO.

EQUIPMENT GRADES

1 [ ] SAFETY CLASS (SC) STRUCTURES, SYSTEMS AND COMPONENTS (SSC)
(All items in each section SHALL be evaluated)

2 [ ] SAFETY SIGNIFICANT (SS) STRUCTURES, SYSTEMS, AND COMPONENTS (SSC)
(All items in each section SHALL be evaluated)

3 [ ] MISSION RELATED STRUCTURES, SYSTEMS, AND COMPONENTS (SSC)

4 [ ] DEFAULT GRADES STRUCTURES, SYSTEMS, & COMPONENTS (SSC)

JOB CLASSIFICATION

1 □ _____
2 □ _____
3 □ _____
4 □ _____

JOB SCOPE

SECTION A

**NOTE: EVALUATE each ITEM and add on Evaluation Date**

| HEALTH and SAFETY | YES | NO | Date | Comments |
|---|---|---|---|---|
| INITIAL HAZARD SCREENING (IHS) | [ ] | [ ] | | |
| WALKDOWN CONDUCTED: | [ ] | [ ] | | |
| Customer _____ | | | | |
| Maintenance Supv. _____ | | | | |
| Radiological Control _____ | | | | |
| Industrial Hygiene _____ | | | | |
| Industrial Safety _____ | | | | |
| Craftsperson _____ | | | | |
| Planner _____ | | | | |
| Other _____ | | | | |
| JOB HAZARD ANALYSIS (Y70-043) | [ ] | [ ] | | PAGE #_____ |
| HAZARD ANALYSIS RESULTS | | | | PAGE #_____ |
| Incorporated into Job Package □ Page _____ | [ ] | [ ] | | |
| Cover in Crew Brief _____ | [ ] | [ ] | | |
| HOISTING AND RIGGING (SH115PD) | [ ] | [ ] | | |
| CONTAMINATION CONT. (ALARA) (Y70-003) | [ ] | [ ] | | |
| OSB REVIEW | [ ] | [ ] | | |
| | [ ] | [ ] | | |
| OTHER _____ | | | | |
| | | | | |
| | [ ] | [ ] | | |
| PERMITS | [ ] | [ ] | | |
| LOCKOUT-TAGOUT (IS-107) | [ ] | [ ] | | |
| | [ ] | [ ] | | |
| [ ]PERMITTED [ ] NOT PERMITTED | [ ] | [ ] | | |
| (Single Source) | [ ] | [ ] | | |
| POWER DISTRIBUTION (MA-102) | [ ] | [ ] | | |
| OSWP (Y70-525) | [ ] | [ ] | | |
| CONFINED SPACE (Y70-750) | [ ] | [ ] | | |
| RWP (Y70-122) | [ ] | [ ] | | |
| EXCAVATION/PENETRATION (EP-D-06, Y70-35-005) | [ ] | [ ] | | |
| ASBESTOS/CERAMIC FIBER (70-204) | [ ] | [ ] | | |
| WASTE DISPOSAL (Y70-903) | [ ] | [ ] | | |
| HOT WORK (Proc. Y70-255) | [ ] | [ ] | | |
| STORM/SANITARY SEWER CONN. (Y70-920) | [ ] | [ ] | | |
| FIRE WALL PENETRATION (Y70-257) | [ ] | [ ] | | |
| BERYLLIUM WORK PERMIT (SH-201PD) | [ ] | [ ] | | |
| OTHER_____ | | | | |

**Sample: Form was current at time of Procedure issue. FMO Planning Manager controls and issues current forms.**

JOB PLANNING CHECKLIST

MJR NO.

**NOTE: EVALUATE each ITEM and add on Evaluation Date**

| REQUIREMENTS | YES | NO | DATE | COMMENTS |
|---|---|---|---|---|
| NHPA ASSESSMENT | [ ] | [ ] | | |
| NEPA ASSESSMENT (Y70-915, Y50-35-MD-033) | [ ] | [ ] | | |
| LABOR STANDARDS ASSESSMENT (MA-101) | [ ] | [ ] | | |
| CM ASSESSMENT (Y15-001INS) | [ ] | [ ] | | |
| USQD | [ ] | [ ] | | |
| POSTMAINTENANCE TESTING (Y10-204) | | | | |
| DOCUMENTED/FORMAL | [ ] | [ ] | | |
| CHECKOUT/INFORMAL | [ ] | [ ] | | |
| SPECIAL REQUIREMENTS | | | | |
| SPECIAL TOOLS/MATERIALS | [ ] | [ ] | | |
| CERTIFICATION REQUIREMENTS (specify) | [ ] | [ ] | | |
| CODED PRESSURE VESSEL INVOLVED | [ ] | [ ] | | |
| PLANT/INSTRUMENT AIR | [ ] | [ ] | | |
| BREATHING AIR | [ ] | [ ] | | |
| ELEVATED WORK SURFACE | [ ] | [ ] | | |
| WELDING INSPECTION | [ ] | [ ] | | |
| OTHER_____ | [ ] | [ ] | | |
| JOB PACKAGE INCLUDES: | | | | |
| | [ ] | [ ] | | |
| JOB PACKAGE INSTRUCTION SHEET (Required for grades 1 and 2) | [ ] | [ ] | | |
| REPAIR HISTORY FORM | [ ] | [ ] | | |
| MATERIALS LIST and LOCATION | [ ] | [ ] | | |
| PROCEDURES (Required for grades 1) | [ ] | [ ] | | |
| CFC DRAWINGS(Required for grades 1 and 2 mods) | [ ] | [ ] | | |
| TECHNICAL MANUALS (Vendor Data) | [ ] | [ ] | | |
| QA/QC REQUIREMENTS | | | | |

ESTIMATED CREW SIZE _____ ESTIMATED NUMBER of MAN-HOURS _____

[ ] JOB PACKAGE INCLUDES NECESSARY INFORMATION AND MATERIAL LOCATIONS

ELECTRICAL REVIEW (SIGNATURE)_____ BADGE NO. _____ DATE _____
MAINTENANCE SUPERVISOR (SIGNATURE)_____ BADGE NO. _____ DATE _____
INDUSTRIAL SAFETY REVIEW (SIGNATURE)_____ BADGE NO. _____ DATE_____
OTHER REVIEWS:
_____(Signature) _____ BADGE NO. _____ DATE_____
_____(Signature)_____ BADGE NO. _____ DATE_____

**Sample: Form was current at time of Procedure issue. FMO Planning Manager controls and issues current forms**

MJR NO.

**SECTION B**

**JOB PACKAGE REVIEW**

**Configuration Control required:** **Yes** ☐ **No** ☐

**Engineer:** _____ **Badge No:**_____ **Date:**_____

The Engineer signature indicates that a Configuration Control review has been performed and if there is Configuration Control change required the appropriate paperwork will be provided to the planner to be included in the job package.

**SME (Maint. Supv., Maint. Craft, Fire Protection, Central Engineering, etc.)**

**Signature:**_____ **Badge No:** _____ **Date:**_____

The SME signature indicates that a technical review has been performed and the appropriate system/equipment techniques have been identified to correct the deficiency and the PMT instructions are adequate to return the system/equipment to a operable status.

**PLANNER:**_____**Badge No:**_____**Date:**_____

The Planner signature indicates that the planning process is complete and the Job Package is ready to obtain plant conditions.

**Operations Line Management/Customer (Bldg Mgr, OPS Mgr, STA, etc)**

**Signature:**_____**Badge No:**_____**Date:**_____

(SIGNATURE REQUIRED FOR ALL NUCLEAR FACILITIES AND GRADE 1 & 2 JOBS)

The operations line signature indicates that the job package has been reviewed and approved and the work is authorized to be conducted in accordance with the job plan. Indicates line management concurrence that work, if performed , will not violate the safety envelope or threaten the safety of worker, public, or environment.

**Maintenance Coordinator:**_____**Badge No:**_____**Date:**_____

The Maintenance Coordinator signature indicates that the job package has been reviewed and Plant conditions have been set.

**SECTION C**

**WORK START APPROVAL**

**CUSTOMER**_____**Badge No:**_____**Date:**_____

APPROVED DURATION: JOB [ ] TASK [ ] SHIFT [ ] FROM _____ TO _____

COMMENTS _____

_____

**SECTION D**

## POST JOB SITE INSPECTION AND JOB COMPLETION

**CRAFTPERSON** (INITIALS_____BADGE No._____Date:_____)(INITIALS_____BADGE No._____Date:_____)

(INITIALS REQUIRED FOR ALL CATEGORIES)

**CUSTOMER**_____BADGE NO._____DATE:_____

(SIGNATURE REQUIRED FOR ALL NUCLEAR FACILITIES AND GRADE I & II JOBS)

**FMO SUPERVISOR**_____BADGE NO._____DATE_____

**Attachment D3 - JOB PACKAGE COMMENT FORM (cont.)**

**Sample: Form was current at time of Procedure issue. FMO Planning Manager controls and issues current forms.**

| Item No. | | MJR No. |
|---|---|---|
| | General Comments: | |
| | | |
| | | |
| | | |
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| | | |
| | | |
| | | |
| | | |
| | Package Improvements: | |
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| | | |
| | | |
| | Check Delays Encountered during Job Execution: Time Delays > 15 mins | |
| | LO/TO | |
| | OSWP | |
| | Incomplete Planning | |
| | Parts not available | |
| | RADCON Delays (RWP, flagging, etc.) | |
| | Incomplete Job Scope | |
| | Inadequate Support Coverage (IH, Fire Dept., Insulation, Riggers, etc.) | |
| | Work Start Approval | |
| | Change in Job Scope | |
| | Other (specify) | |
| | | |

**Appendix D (Page 16 of 24)**
**Attachment D4 - INSTRUCTIONS FOR COMPLETING JOB PACKAGE INSTRUCTIONS**

## A. Discussion

Good work instructions are intended to ensure hazard controls are in place to protect worker, public, environment ane to reduce mistakes, improve quality, provide a useful tool to the crafts for completing assigned tasks, and to provide documentation describing how the maintenance activity was accomplished. Job packages are considered as historical documents and should be treated as such. Job Package instructions shall be developed using the following guidelines; such items, however, may not be necessary for every job. The planner shall determine the applicability of each item for a specific job being planned.

**NOTE: See Attachment D.5 of this Appendix for an example of Job Package Instructions.**

1. Job Package Instructions format (Example form in this Appendix) shall be used for work instructions when developing planned jobs. In packages that contain Job Planning Checksheets the planner should attach them to the job package.

2. Number in succession all pages and forms attached to a job package, with the MJR being page 1 and with all attachments numbered in succession. Final pagination shall be performed in accordance with FMO Procedure Y10-35-006, *Completing Maintenance Job*.

3. If a Grade 1 or 2 or 3 (as appropriate) Job Package references a procedure to perform a maintenance activity.

   a. Ensure that the procedure has been qualified for use on Grade 1 or 2 structures, systems, or components (SSC).

   b. Incorporate the necessary steps from the procedure into written work instructions.

4. If a maintenance activity requires more than one work group, the Planning Specialist shall determine the primary work group. A planner from that work group shall serve as the Lead Planner to develop primary work instructions. Each work group shall develop a job-planning package as required.

5. Work instructions should be reviewed and discussed with the Maintenance Supervisor and customer during preparation of the job package.

6. Ensure that classified information is not written down on the Job Package Instructions.

## B. Guidelines for Compiling Work Instruction Information

1. Review the MJR and divide the maintenance work into job phases; break job phases down by task or by maintenance activities.

2. Obtain historical job packages for identical, or similar, maintenance activities, if applicable, or if value added.

**Appendix D (Page 17 of 24)**
**ATTACHMENT D4 - INSTRUCTIONS FOR COMPLETING JOB PACKAGE INSTRUCTIONS (cont.)**

**C. Job Scope**

1. Clearly define the scope of the job to identify customer requirements and to establish job boundaries.

   a. Equipment numbers or unique identifiers (deficiency tag numbers, room numbers, etc.) should be used in the job scope to ensure that the work is clearly identified.

   b. Set the boundaries of the work to be performed by indicating in the job scope the limits, quantities, job duration, etc.

**D. Job Prerequisites**

**NOTE: This section identifies (1) activities which shall be completed or (2) system or plant conditions which shall exist prior to performing any maintenance activity (i.e., technical specifications or limiting conditions of operation).**

**NOTE: Operations line management/customer sets plant conditions, approves maintenance schedule, permits are in place, equipment is prepared for maintenance, and approves the start of work.**

1. Prerequisites may include, but are not limited to, the following:

   a. Any type of interferences which may obstruct performance of maintenance activity.

   b. Spare parts, materials, expendable materials, alternative materials, equipment, and supplies (including part number, specification description, quantity, staging location, and special inspection requirements) required for maintenance activity.

      (1) Determine availability of spare parts, materials, equipment, and/or supplies required for work. If pre-staging parts/materials, enter the staging location.

      (2) Initiate Spare Parts/Material Record form (Attachment D.6 of this appendix).

   c. Special tools and Measuring and Test Equipment (M&TE) required to perform maintenance activity. Examples: calibrated torque wrench, non-sparking tools, and washing standards.

   d. Technical assistance, support craft, or other crafts or work control centers (WCCs) required to assist in performing maintenance activity.

   e. Housekeeping activities.

   f. Scaffolding and ladder needs.

   g. Inspection/certification.

   h. Storage needs.

**Appendix D (Page 18 of 24)**
**Attachment D4 - INSTRUCTIONS FOR COMPLETING JOB PACKAGE INSTRUCTIONS (cont.)**

**D. Job Prerequisites (cont.)**

i. Security-related activities.

j. Permits needed.

k. Flagging and/or warning sign needs.

2. If necessary, contact personnel familiar with equipment deficiency to ensure that the problem has been fully identified.

3. Consider other related activities, such as MJRs, preventive maintenance (PM) tasks, and surveillance tests, for same equipment/system or general area, which may be worked at the same time, to promote efficient scheduling of maintenance activities.

**E. Precautions**

1. This section identifies special considerations or requirements related to safety, environmental impact, personnel, or equipment protection during job execution. These considerations may include, but are not limited to, the following:

a. The following Precaution must be included in all job packages: "This Package authorizes work only on those SSCs identified in the Job Scope."

b. Include applicable safety precautions in accordance with Energy Systems health and safety policies, procedures, and from hazard analysis recommendations resulting from hazards identification in accordance with Y10-012.

c. If maintenance activity involves handling of hazardous materials, include precautions in accordance with facility hazardous-materials handling policies and procedures.

d. Identify and incorporate any personnel protective equipment and precautions required in accordance with facility health and safety policies, procedures, or from any pre-job briefings with H&S personnel.

e. If maintenance activity involves possibility of heat and cold stress, include precautions in accordance with facility health and safety policies, procedures, or from any pre-job briefings with H&S personnel.

f. If maintenance activity involves possibility of contact with asbestos/beryllium-containing materials, include required permits and precautions in accordance with facility asbestos abatement policies and procedures, and beryllium policies and procedures.

**Appendix D (Page 19 of 24)**
**Attachment D4 - INSTRUCTIONS FOR COMPLETING JOB PACKAGE INSTRUCTIONS (cont.)**

**E. Precautions (cont.)**

g. Specify use of warning signs and barriers as required by facility health and safety policies and procedures.

h. Where maintenance activity requires use of compressed air and/or gases, include precautions as required by facility health and safety policies and procedures.

i. When maintenance activity requires work to be performed around energized electrical equipment, include required safety precautions as required by facility health and safety policies and procedures.

j. When maintenance activity requires work to be performed on electrical equipment, ensure Lockout/Tagout requirements are being meet, as well as, the proper use of appropriate personnel protective equipment required by facility health and safety policies and procedures.

k. When maintenance activity requires use of chemical, include safety precautions as required by Material Safety Data Sheets (MSDSs) and other applicable facility health and safety policies and procedures.

l. When rigging is required to perform maintenance activity, include precautions as required by safe hoisting, rigging, and material-handling practices.

m. When maintenance activity requires entry into a radiologically restricted area, include all radiation safety requirements and ALARA requirements as required by Radiological Control policies and procedures.

n. If maintenance activity involves transporting and handling of radioactive materials and/or use, include precautions in accordance with facility health physics policies and procedures.

o. When maintenance activities require entry into a poorly lighted area, include precautions or prerequisites that are required to be met before starting work.

p. If the job cannot be completed as specified in the job package, return the package to the planner for job package revision.

**F. Job Package Work Instructions**

1. This section shall include guidelines, instructions, and steps required to perform a maintenance activity and may contain any of the following as appropriate for the complexity and risk of the work to be performed:

   a. Detailed step-by-step work instructions with step sign-off or an approved procedure.

      (1) Required for Grade 1 or 2.

      (2) Shall be utilized for High Risk/Complex tasks - Grade 3 and 4, where appropriate.

**Appendix D (Page 20 of 24)**
**Attachment D4 - INSTRUCTIONS FOR COMPLETING JOB PACKAGE INSTRUCTIONS (cont.)**

**F. Job Package Work Instructions (cont.)**

b. Written instructions (either detailed or in outline form) for specific maintenance activity or approved standard work instructions. The level of detail contained in the written instructions depends on the risk and complexity of the job. (Appendixes B, C, D, and I)

c. A prescribed combination of approved procedures and supplementary written instructions.

d. The use of vendor manuals should be utilized whenever available.

2. Considerations used to determine the type of work instructions to develop include the following:

a. Work Control Level /Job Complexity of the maintenance activity to be performed.

b. Lessons Learned from other facilities and feedback from previous packages.

c. Grade of affected equipment.

d. Existing maintenance procedures for affected equipment is graded.

e. Involvement of special processes (e.g., welding, chemical cleaning, etc.).

f. ASME (American Society of Mechanical Engineers) Code Class of affected equipment.

g. Quality Control/Quality Assurance applicability.

h. Expected skill level of crafts involved (i.e., qualification, experience, and training in the maintenance activity to be performed).

3. Considerations used to determine the type of work-instruction steps include, but are limited to, the following:

a. If interferences are identified for maintenance activity, ensure that work instructions include steps for their removal and subsequent reinstallation.

b. When a maintenance activity requires a Lockout/Tagout to be performed, ensure that work instructions include steps or hold points/isolation points for performing the task using a qualified and approved Lockout/Tagout procedure.

c. When maintenance activity requires use of lubricants, ensure that correct lubricants are specified in work instructions.

d. If maintenance activity involves the maintenance or adjustment of safety valves or relief valves, ensure that work instructions are included for performing the task or that qualified and approved procedures for the specific task are used.

**Appendix D (Page 21 of 24)**
**Attachment D4 - INSTRUCTIONS FOR COMPLETING JOB PACKAGE INSTRUCTIONS (cont.)**

**F. Job Package Work Instructions (cont.)**

e. If maintenance activity involves handling and disposal of potentially hazardous materials, ensure (1) that work instructions include specific instructions which refer to facility waste- management policies and procedures and (2) that required permits have been obtained and included in the job package.

f. If maintenance activity involves the breaching of a system (or a portion of a system), ensure that the work instructions include a maintenance verification point

g. If maintenance activity has an existing approved Quality Control Inspection Plan, attach a copy of the plan and include steps in the work instructions to identify inspection, notification, and verification points.

h. When maintenance activity involves a special process, ensure that specific steps are included in the work instructions addressing these requirements.

i. If maintenance activity involves the torquing and/or detensioning of fasteners on Grade 1 or Grade 2 SSC, ensure that the work instructions include proper torque values and torquing sequences.

j. If maintenance activity involves a change to a component ASME Code Nameplate, ensure that the work instructions state that the "original nameplate shall not be changed, defaced, or removed." Instead, a new nameplate shall be installed using wire or banding. If the new nameplate is for a change in set point to an ASME Code Class safety or relief valve, ensure that the work instructions include the requirements for the new nameplate to contain the following information, as a minimum:

UNITED STATES DEPARTMENT OF ENERGY
PROPERTY NO. _____
MFG. SERIAL NO. _____
NEW SETPOINT PRESS. _____

MJR NO. _____
DATE RESET _____

k. Ensure that applicable Postmaintenance Test requirements are included in the instructions.

l. Ensure that welding inspection requirements are specified in work instructions.

**G. References**

All documents (drawings, schematics, vendor manuals, manufacturers specifications, engineering specifications, etc.) and procedures containing requirements addressed by work instructions are necessary for referral if not referenced on Job Planning Checklist.

**H. Documentation Section**

This section identifies all forms contained in the Maintenance Job Package which shall be retained as quality records, such as the Job Package Instructions.

**Appendix D (Page 22 of 24)**
**Attachment D5 - JOB PACKAGE INSTRUCTIONS**

**Sample: Form was current at time of Procedure issue. FMO Planning Manager controls and issues current forms.**

## JOB PACKAGE INSTRUCTIONS

| **MAINTENANCE TYPE**_____ | **MJR NO.**_____ |
|---|---|

**JOB SCOPE:** Repair caustic leak at column A-12 Building 4330-4B

**1.0 PREREQUISITES**

1.01 Supervisor conduct a crew meeting to discuss Job Package Instructions and Safety requirements.

1.02 Verify that hold-off tags have been applied to values VH-16 and VH-17.

1.03 Component is located approximately 12' off floor, next to North wall and installation of scaffolding is required.

**2.0 PRECAUTIONS**

2.01 System contains a 90% caustic solution. Goggles, splash shield and plastic apron are required whenever the possibility of breaking containment exists.

2.02 This package authorizes work only on those SSCs identified in the Job Scope.

2.03 Ensure safety shower and eye bath are available at or near site.

**3.0 WORK INSTRUCTIONS**

3.01 Material for this job is located in Room 103, Bin 16.

3.02 Prefabricate flange and spool piece in weld shop.
**Note: A weld inspection must be performed during this step.**

3.03 Install scaffolding.

3.04 Disassemble and remove flange fasteners, gaskets and spool piece.

3.05 Clean flange mating surfaces.

3.06 Install prefabricated spool piece, gaskets, and fasteners.

**Appendix D (Page 23 of 24)**
**Attachment D5 - JOB PACKAGE INSTRUCTIONS (cont.)**

**Sample: Form was current at time of Procedure issue. FMO Planning Manager controls and issues current forms.**

## JOB PACKAGE INSTRUCTIONS

**MAINTENANCE TYPE**_____ **MJR NO.**_____

**3.0 WORK INSTRUCTIONS** (cont.)

3.07 Torque flange fasteners to ~~175~~ 250 ft/lbs. RJB 13 DEC 94

3.08 Clean area of any repair debris before leaving area.

3.09 Note any changes/improvements on Deficiency/Comment page.

3.10 Complete Maintenance History Data Sheets.

3.11 Return completed job package to supervisor for review and closeout.

3.12 Return package to planner.

**4.0 REFERENCES**

4.01 Purchase Order No. 34567

4.02 Drawing No. 4113-00001

4.03 Welding Specification W50

**5.0 DOCUMENTATION**

5.01 This job package serves as documentation for performance of work activity and shall be retained and filed in accordance with applicable guidelines.

**Appendix D (Page 24 of 24)**
**Attachment D6 - SPARE PARTS/MATERIAL RECORD**

**Sample: Form was current at time of Procedure issue. FMO Planning Manager controls and issues current forms.**

| | SPARE PARTS/MATERIAL RECORD | | MJR NO. |
|---|---|---|---|
| **PART NO.** | **QUANTITY** | **DESCRIPTION** | **LOCATION** |
| | | | |
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CHARGE NO. _____

_____

_____

COST CODE _____

_____

_____

**Appendix E (Page 1 of 3)**
**INSTRUCTIONS FOR COMPLETING POSTMAINTENANCE TEST CONTROL FORM**

## A. DISCUSSION

Postmaintenance Test (PMT) is a test that is performed following maintenance on a piece of equipment. Its purpose is to prove that the equipment is operable to meet its designed fit, form, or function and confirms the following:

- The original deficiency has been corrected.
- No new deficiencies have been created.
- The equipment is ready to return to the equipment owner.

The types of PMT that are performed are either Documented/Formal or Checkout/Informal.

Documented/Formal PMT is a rigorous and formal documented PMT and is required on Grades 1 and 2 equipment. It may also be applied to Grades 3 and 4 equipment when specified by the equipment owner, utilizing Y10-102. Example: After pump replacement make and record the following checks:

RPM_____(1700+/-5 rpm) Pressure_____(300 psi+/-10 psi)

Checkout/Verification is a form of PMT using standard maintenance practices as well as craft skills and knowledge, to prove that equipment is operable as designed. The testing does not require the formal documentation specified for Documented/Formal PMT. Customer acceptance of informal PMT is documented via satisfactory - Unsatisfactory - Date - initials in work instructions.

Example: After replacement of a 3 phase motor ensure rotation is in the right direction.

**NOTE: If a PMT needs or requires taking data, a documented PMT must be performed.**

## B. INSTRUCTIONS

1. Block No.

   a. Equipment ID No.**:** Planner shall enter the equipment identification number (Y#, M#, etc.)

   b. **MJR No.:** Planner shall enter the number of the MJR requesting the work.

   c. **Description of Test**: Planner shall enter in this block a description of the test, as designated by the equipment owner, engineering, and/or the supervisor, that is to be performed.

**Appendix E (Page 2 of 3)**
**INSTRUCTIONS FOR COMPLETING POSTMAINTENANCE TEST CONTROL FORM (cont.)**

## B. INSTRUCTIONS (cont.)

1. Block No. (cont.)

   d. **Test Instructions:** Planner shall provide detailed instructions, as designated by the equipment owner, engineering, and/or the supervisor, on how to perform the test. Include acceptance criteria such as = voltage at TP-5 must be 20 MV ± 2 MV.

**NOTE: If an equipment-specific data sheet and a PMT procedure are available, they may be referenced instead of duplicating the test-result data. Reference the number of attached data sheets.**

   e. **Test Form Prepared By:** The person(typically the planner) who prepared the form shall sign, add badge number, and date.

   f. **Test Start Approval:** The equipment owner (or designee) shall sign, add badge number, and date. This signature indicates the approval of the test instructions and start of the test.

   g. **Initial Test Results ___ Satisfactory ___ Unsatisfactory:** The test performer shall mark the proper word here to indicate the results of the initial test.

   h. **Initial Test Results (Comments)**: The test performer shall record any comments on the initial test.

i. **Corrective Actions Taken**: If any corrective action is required, as a result of an unsatisfactory initial test, the test performer shall record it.

**NOTE: If the initial test results are satisfactory, mark final test fields as "not required".**

   j. **Final Test Results** ___ Satisfactory ___ Unsatisfactory: The test performer shall mark the proper word here to indicate the results of the final test.

   k. **Final Test Results (Comments):** The test performer shall record any comments on the final test.

   l. **Test Performed By:** Upon completion of the test the test performer (as assigned by the Maintenance Supervisor) shall sign, add badge number, and date.

   m. **Test Accepted By:** The maintenance supervisor shall obtain signature, badge number, and date from the equipment owner or designee to indicate test acceptance.

   n. **Test Accepted By:** The maintenance supervisor shall sign, add badge number and date here to indicate test acceptance.

**NOTE: The location of the completed data sheets, if separate from the job package, shall be identified.**

**Appropriate signatures on this PMT Control Form are required and shall be returned to the planner with the complete job package.**

**Attachment E1 - INSTRUCTIONS FOR COMPLETING POSTMAINTENANCE TEST CONTROL FORM (cont.)**

**Sample: Form was current at time of Procedure issue. FMO Planning Manager controls and issues current forms.**

| **EQUIPMENT ID No.** _____ | **POSTMAINTENANCE TEST CONTROL FORM** | **MJR No.** 2 |
|---|---|---|

Description of Test: _____

Test Instructions: _____

Test Form Prepared By: 5 _____ Name _____ Badge _____ Date

Test Start Approval: 6 _____ Equipment Owner _____ Badge _____ Date

Initial Test Results: 7 Satisfactory ___ Unsatisfactory

Comments: 8 _____

Corrective Actions Taken: 9 _____

Final Test Results: 10 Satisfactory _____ Unsatisfactory

Comments: 11 _____

Test Performed By 12 _____ Name _____ Badge _____ Date

Test Accepted By: 13 _____ Equipment Owner _____ Badge _____ Date

Test Accepted By: 14 _____ Maintenance Supervisor _____ Badge _____ Date

Subject: Planner's Guide

**APPENDIX F (Page 1 of 1)**
**MAINTENANCE HISTORY DATA SHEET**

**Sample: Form was current at time of Procedure issue. FMO Planning Manager controls and issues current forms.**

FORM VERSION: 7.2, OCT. 31, 1995

## MAINTENANCE HISTORY DATA SHEET

TODAY'S DATE:

***INSTRUCTIONS:***

*(1) CRAFTSPERSON(S) MUST COMPLETE FORM.*
*(2) LINE SUPERVISOR ENSURES THAT DATA IS ENTERED INTO COMPASS. (EQ11)*
*(3) KEEP THE ORIGINAL WITH THE JOB PACKAGE.*

| MJR NO.: | AREA/FUNCTIONAL LOCATION OR MEL NUMBER: |
|---|---|

**1. PARENT SYSTEM (EQUIPMENT) DATA:**

| HISTORY TYPE: (CIRCLE ONE) | FAILURE DATE & TIME: | WORK STARTED: *(MM/DD/YY)* | WORK COMPLETED: | RETURNED TO OPERATIONS: *(MM/DD/YY)* |
|---|---|---|---|---|
| CM CORRECTIVE MAINTENANCE<br>MU MODIFICATIONS & UPGRADES<br>PL PLANNED PM | NOT REQUIRED<br>(COMPASS WILL DEFAULT THIS DATE) | *DATE:*_____<br>*TIME:* * | NOT REQUIRED<br>(COMPASS WILL DEFAULT THIS DATE) | *DATE:*_____<br>*TIME:* * |

**2. COPY THE MOST SIGNIFICANT COMPONENT FROM THE FOLLOWING PAGES.** **** NOTE: IF TIME IS NOT ENTERED, IT DEFAULTS TO SYSTEM TIME***
*(COMPLETE A SEPARATE DATA SHEET FOR EACH SIGNIFICANT COMPONENT.)*

| COMPONENT: | |
|---|---|

**3. CAUSE OF FAILURE:** *CIRCLE THE CODE FOR THE MOST PROBABLE "CAUSE OF FAILURE."*

| CODE | CAUSE OF FAILURE | CODE | CAUSE OF FAILURE | CODE | CAUSE OF FAILURE | CODE | CAUSE OF FAILURE |
|---|---|---|---|---|---|---|---|
| AB | ABUSE | HE | HARSH ENVIRONMENT | LT | LIGHTENING | OP | OPERATING ERROR |
| AG | AGE (OLD & WORN OUT) | IA | INAPPROPRIATE APPLICATION | LU | LUBRICATION | OT | OTHER: (RECORD IN 6.C.) |
| DE | DESIGN | IE | INSTALLATION ERROR | MD | MANUFACTURING DEFECT | PF | POWER FAILURE |
| EL | EXPECTED LIFE | LP | LACK OF PM | NF | NO FAILURE | PR | PREMATURE FAILURE |

**4. AS FOUND CONDITION:** *CIRCLE THE CODE FOR THE MOST SIGNIFICANT "AS FOUND CONDITION."*

| CODE | AS FOUND CONDITION | CODE | AS FOUND CONDITION | CODE | AS FOUND CONDITION | CODE | AS FOUND CONDITION |
|---|---|---|---|---|---|---|---|
| BNT | BENT | EMP | EMPTY | LOW | LOW | RT | ROTTED |
| BRK | BROKEN | ERD | ERODED | MLT | MELTED | SHT | SHORTED |
| BRT | BURNT | FLL | FALLEN | MSL | MISALIGNED | STD | STUCK |
| BST | BURST | FRZ | FROZEN | NSY | NOISY | TGT | TIGHT |
| CLD | COLD | BSD | FUSED | OCL | OUT OF CALIBRATION | TWT | TWISTED |
| CNT | CONTAMINATED | GRN | GROUNDED | OPR | OPERATIONAL (WORKING) | UNB | UNBALANCED |
| CRD | CORRODED | HOT | HOT | OTH | OTHERS: (RECORD IN 6.C.) | UNB | UNBALANCED |
| DEN | DE-ENERGIZED | JAM | JAMMED | OUS | OUT OF SERVICE | VIB | VIBRATING |
| DRT | DIRTY | LEK | LEAKING | PIT | PITTED | WET | WET |
| DRY | DRY | LOS | LOOSE | PLG | PLUGGED | WRN | WORN |

**5. ACTION TAKEN:** *CIRCLE THE CODE FOR THE MOST SIGNIFICANT "ACTION TAKEN."*

| CODE | ACTION TAKEN | CODE | ACTION TAKEN | CODE | ACTION TAKEN | CODE | ACTION TAKEN | CODE | ACTION TAKEN |
|---|---|---|---|---|---|---|---|---|---|
| ADD | ADDED | COR | CORRECTED | INU | INSULATED | PNT | PAINTED | STT | STRAIGHTENED |
| ADJ | ADJUSTED | COV | COVERED | ISL | ISOLATED | PRG | PROGRAMMED | SYN | SYNCHRONIZED |
| ALN | ALIGNED | CUT | CUT | LEV | LEVELED | RBT | REBUILT | TGT | TIGHTENED |
| ANC | ANCHORED | DRN | DRAINED | LOS | LOOSENED | RCO | RECONDITIONED | TND | TUNED |
| BAL | BALANCED | FAB | FABRICATED | LUB | LUBRICATED | RIN | REINSTALLED | TRN | TURNED |
| BLD | BLED | FIL | FILED | MAH | MACHINED | RLM | RELAMPED | UNP | UNPLUGGED |
| BRZ | BRAZEN | FLD | FILLED | OPN | OPENED | RLN | RELINED | WLD | WELDED |
| CAL | CALIBRATED | FNS | FINISHED | OTH | OTHER: (RECORD IN 6.C.) | RPL | REPLACED | WND | WOUND |
| CHG | CHARGED | GRA | GROUND, ABRASIVE | OUS | OUT OF SERVICE | RTT | ROTATE | WRD | WIRED |
| CLN | CLEANED | GRE | GROUND, ELEC. | OVH | OVERHAULED | SLD | SOLDERED | | |
| CLS | CLOSED | INS | INSTALLED | PKD | PACKED | SPL | SPLICED | | |

**6. THE BELOW INFORMATION WILL BE RECORDED INTO THE COMPASS "COMMENTS" FIELD. (EQ11.A or EQ11.C)**

***A. AS LEFT CONDITION:*** *CHECK THE BOX FOR THE MOST SIGNIFICANT "AS LEFT CONDITION."*

☐ FULLY OPERATIONAL
☐ REPAIRED: NEEDING ADDITIONAL CRAFT WORK
☐ REPAIRED: NEEDING VIBRATION BASELINE TO BE TAKEN
☐ OTHER:_____

***B. FAILURE IMPACT:*** *CHECK THE BOX FOR THE MOST SIGNIFICANT "FAILURE IMPACT."*

☐ CAUSED ADDITIONAL FAILURES
☐ DAMAGED PRODUCT
☐ ENVIRONMENTAL IMPACT
☐ REQUIRED CLEANUP OF MESS
☐ SAFETY IMPACT
☐ SCHEDULE DELAY
☐ UNUSUAL OCCURRENCE REPORT
☐ OTHER:_____

*NOTE: IF " C " OR " D " ARE COMPLETED, A COPY OF THIS FORM MUST BE SENT TO P.B. LEONETTI AT THE BELOW ADDRESS.*

***C. LIST ALL "OTHER(S)" FROM 2 - 5 .***

_____

_____

***D. LIST THE PREVENTIVE MAINTENANCE RECOMMENDATIONS WHICH YOU BELIEVE WOULD CORRECT FUTURE PROBLEMS OF THIS KIND.***

_____

**APPENDIX G (Page 1 of 1 )**

**JOB PACKAGE REVISION FORM**

**SAMPLE: Form was current at time of Procedure issue. FMO Planning Manager controls and issues current forms.**

| Job Package Rev. No. | JOB PACKAGE REVISION FORM | MJR NO. |
|---|---|---|

**DESCRIPTION OF REVISION:**_____

_____

_____

**1.0 Prerequsites:**_____

_____

_____

**2.0 Precautions:**_____

_____

_____

**3.0 Work Instructions:**_____

_____

_____

**PMT REQUIREMENTS**_____

**JOB PACKAGE APPROVAL**

Job Package signature indicates that job revision has been reviewed for CM, Hazards, and PMT requirements.

PLANNER/ESTIMATOR (SIGNATURE)_____ BADGE NO._____ DATE _____

ELECTRICAL REVIEW (SIGNATURE)_____ BADGE NO._____ DATE _____

FMO SUPERVISOR (SIGNATURE)_____ BADGE NO._____ DATE _____

CUSTOMER (SIGNATURE)_____ BADGE NO._____ DATE _____

**WORK START APPROVAL**

Approval Duration: JOB [ ] REVISION NO. [ ] SHIFT [ ] FROM _____ TO _____

CUSTOMER (SIGNATURE)_____ BADGE NO._____ DATE_____

**APPENDIX H (Page 1 of 9)**
**ACRONYMS AND DEFINITIONS**

**A. Acronyms**

| | | |
|---|---|---|
| ACM | – | Asbestos-Containing Material |
| AI | – | Authorized Inspector |
| ALARA | – | As low as reasonably achievable |
| ASME | – | American Society of Mechanical Engineers |
| CFC | – | Correct for Construction |
| CM | – | Configuration Management |
| CS | – | Computer Security |
| CX | – | Categorical Exclusion |
| DOE | – | Department of Energy |
| EA | – | Environmental Assessment |
| EIS | – | Environmental Impact Statement |
| ET&I | – | Equipment Testing and Inspection |
| FHS | – | Follow-up Hazard Screening |
| FMIS | – | Facilities Management Information System |
| FMO | – | Facilities Management Organization |
| JHA | – | Job Hazard Analysis |
| LS | – | Labor Standards |
| MBWA | – | Management By Walking Around |
| MIG | – | Maintenance Importance Generator |
| MJR | – | Maintenance Job Request |
| MSDS | – | Material Safety Data Sheet |
| M&TE | – | Measuring and Test Equipment |
| MVP | – | Maintenance Verification Point |
| NAVFACS | – | Naval Facilities Engineering Performance Standards |
| NEPA | – | National Environmental Policy Act of 1969 |
| NHPA | – | National Historic Preservation Act |
| NIST | – | National Institute of Standards and Technology |
| OSB | – | Operational Safety Board |
| OSR | – | Operational Safety Requirement |
| OSHA | – | Occupational Safety and Health Administration |
| OSWP | – | Operations Safety Work Permit |
| PMT | – | Postmaintenance Test |
| PSS | – | Plant Shift Superintendent |
| RCRA | – | Resource Conservation and Recovery Act |
| RWP | – | Radiation Work Permit |
| SCI | – | Safety Class Item |
| SOC | – | Skill of Craft |
| SSC | – | Structures, Systems, and Components |
| SWP | – | Standing Work Package |
| USQD | – | Undetermined Safety Question Determination |
| WCC | – | Work Control Center |

**APPENDIX H (Page 2 of 9)**

**B. Definitions**

*ALARA (As Low As Reasonably Achievable):* The policy of the Y-12 Plant is to conduct all operations in such a manner that no internal or external personnel exposures to biological, chemical, physical, or radiological hazards or discharges to the environment exceed the DOE standards for safety and health protection.

*Categorical Exclusion (CX):* A listing by grade of routine maintenance actions that (1) individually or cumulatively have no significant effect on the human environment and (2) require neither an Environmental Assessment (EA) nor an Environmental Impact Statement (EIS) as enumerated in Section D of the DOE order on compliance with NEPA (see reference section II.A.1.b) The responsible DOE official affixes his/her signature to indicate acceptance of a CX.

*Configuration Management (CM):* A process applying technical and administrative direction and surveillance to controlled items so as to (1) identify and document functional and physical characteristics, (2) control changes to these characteristics, (3) record and report change processing and implementation status, (4) accurately reflect current configuration in baseline documentation, and (5) ensure that items meet their design requirements.

*Checkout/Informal:* A form of PMT testing using standard maintenance practices, as well as craft skills and knowledge, to prove that equipment is operable as designed. The testing does not require the formal documentation specified for Documented PMT.

*Classification of Maintenance Jobs:* A system of classifying maintenance work in the Plan Maintenance Job portion of the Maintenance Operations Model of five interrelated processes applicable to each maintenance job. The classifications are as follows:

1. *Type Job Codes:* A series of definitions which (1) subdivides maintenance activities according to purpose and function of the maintenance work being classified and (2) assigns weight to each job type in the Maintenance Importance Generator according to purpose and function of the work.

    a. *CL or Calibration:* Activities performed to ensure that the measuring and test equipment (M&TE) performs within acceptable parameters (1) defined by operational requirements and (2) traceable to the National Institute of Standards and Technology (NIST) or other nationally recognized authorities.

    b. *CD or Deficiency Corrective Maintenance*: Repair of deficiencies on SSC that don't meet the definition of Corrective Maintenance. This classification shall be used for jobs to correct deficiencies such as repairing leaks, painting, insulation relamping, adjustments or material condition degradation, etc. that should be corrected but don't render the SSC failed or malfunctioning. These jobs do not require repair history.

    c. *CM or Corrective Maintenance:* Repair of failed or malfunctioning SSC to restore them to their designed function. A structure, system, or component requiring corrective maintenance is identified by a deficiency tag.

    d. *MW or Modification Work:* Planned and controlled alterations to permanent SSC; included are improvements, upgrades, and temporary modifications.

    e. *NF or "Nonfunded" Corrective Maintenance:* Major repair work, identified and documented through Condition Assessment Surveys or other inspection programs, which remains "Nonfunded" at the end of a fiscal year. This work may consist of contracted and/or in-house work usually requiring more than 100 hours and identified by the Facilities Management Organization (FMO) Engineering Group.

    f. *PI or Predictive Inspection:* Consists of those actions necessary to monitor, find trends, and analyze parameters for the purpose of predicting equipment failure. Analysis of PI data is used to determine if the equipment may be approaching a state in which it may no longer be capable of performing its intended function.

    *g. PP or Planned Preventive Work:* Consists of proactive repair actions that are performed prior to equipment failure and initiated by periodic or predictive maintenance results, by vendor recommendations, or experience. These include valve repacking, bearing replacement, balancing, alignment, major-and minor-overhauls, and replacement of known life-span components.

**APPENDIX H (Page 3 of 9)**

**B. Definitions (cont.)**

*Classification of Maintenance Jobs* (cont.)

1. *Type Job Codes* (cont.)

   h. *PW or Periodic Work:* Consists of activities accomplished on a routine basis (typically based on operating hours or calendar time). PW includes inspection, cleaning, painting, alignment, lubrication, overhaul, component replacement, and technical specification surveillance (functional testing, bearing, temperature, pump speeds, etc.).

   i. *SW or Support Work:* Research and support work not within the scope of methods and work plans; however, the level of effort (1) may usually be defined to aid in overall-capacity planning and master-work scheduling and (2) may usually be estimated according to the manner in which personnel are used. Jobs considered to be nonclassical maintenance are grass mowing, snow removal, furniture and equipment moving, housekeeping, landscaping, asbestos abatement, etc.).

2. *Job Category Codes:* Provide discrimination of maintenance work according to special-emphasis areas, such as Safety, Security, Special (as described on the Maintenance Job Request, and Rework; these areas are weighted in the Maintenance Importance Generator (MIG). These job category codes are assigned code letters, such as CA, CM, HS, MW, PM, RW, RS, RP SA (includes S1, S2, and S3), and SC, to be specified by the customer initiating the work.

**NOTE: The preceding code letters are defined in items a through m below. If not assigned by the customer, the codes S1, S2, and S3 may be assigned by the planner after consultation with the customer (see items i through k below).**

   a. *CA or Corrective Action Report Associated Jobs:* Jobs that are initiated by Corrective Action Reports as a result of deficiencies identified by external/internal audits, surveillances, or assessments.

   b. *CM or Corrective Maintenance Jobs:* Repair of failed or malfunctioning SSC to restore them to their designed function. A structure, system, or component requiring corrective maintenance is identified by a deficiency tag.

   c. *HS or Health and Safety Upgrades:* Work necessary to bring SSC into compliance with applicable regulations, OSHA-related upgrades, environmental, fire-protection upgrades, and radioactivity-protection related jobs.

   d. *MW or Modification Work:* Planned and controlled alterations to permanent SSC included are improvements, upgrades, and temporary modifications.

   e. *PM or Planned Maintenance:* Work that consists of any of the following types of jobs: Calibration (CL), Predictive Inspection (PI), Planned Preventive Work (PP), or Periodic Preventive Work (PW).

   f. *RS or Pre-Resumption work*: Work that must be completed prior to the resumption of operation of SSC within a facility that is undergoing a formal restart program following a forced or voluntary shutdown.

   g. RP or Post-Resumption work: Work that will be completed after the Resumption of Operation of SSC within a facility that is undergoing a formal restart program following a forced or voluntary shutdown.

   h. *RW or Rework Job:* A job necessary to repeat for the customer's satisfaction.

   i. *S1 Safety Action:* Life-threatening hazards (including nuclear criticality safety) which are identified in the DOE Occurrence Reporting System (Energy Systems ESS-OP-301). Jobs classified S1 shall have a priority code of "C" (Critical).

**APPENDIX H (Page (4 of 9)**

**B. Definitions (cont.)**

*Classification of Maintenance Jobs* (cont.)

2. *Job Category Codes:* (cont.)

   j. *S2 Safety Action:* Possible-injury hazards (including nonoccurrence criticality safety) which are isolated by flagging and/or warning signs or which may require action to prevent injury. Jobs classified S2 shall have a priority code of "U" (Urgent).

   k. *S3 Safety Action:* General safety-related jobs (1) which result from oral or written safety suggestions, safety inspections, or accident investigations and (2) for which administrative action is adequate to prevent injury as a result of the condition. Jobs classified S3 shall have a priority code of "P" (Priority).

   l. *SC or Security and CS or Computer-Security Associated Jobs:* Work necessary to mitigate security risks. Jobs classified SC may be assigned any priority code (see subsequent Section IV.E.3, items a through d).

   m. *Other:* Used when there is no applicable job category.

3. *Priority Codes:* A series of definitions identified by the coded words Critical (C), Urgent (U), Priority (P), and Routine which establish the relative priority for each MJR by assigning numerical weight within specified ranges of numbers in the MIG.

   a. *Critical (C):* Severe impact on a DOE or cash customer milestone

   b. *Urgent (U):* Major impact on a DOE or cash customer milestone

   c. *Priority (P):* Significant impact on a DOE or cash customer milestone

   d. *Routine:* A routine impact on mission milestones

*Customer:* Equipment or facility owner (or designee), who requested maintenance services through a Maintenance Job Request.

*Deficiency:* Any condition that deviates from the design of a structure, system, or component (SSC) and results in a degraded ability to accomplish its designed function.

*Documented/Formal PMT:* Rigorous, formal documentation of postmaintenance test (PMT) required on Grade I equipment, which may be applied on Categories II and III equipment when specified by the equipment owner.

*Emergency Maintenance:* Any maintenance activity identified as a deficiency or a request of an emergency nature which indicates a significant deviation from the planned or expected course of events which may adversely affect the health or safety of employees or the public or which may endanger property and/or the environment.

*Environmental Impact Checklist:* The means of documenting the scope of proposed projects. This checklist indicates (1) effects on human environment, (2) types of waste and waste streams generated, and (3) methods of waste collection and disposal, all or any of which could be caused by the proposed project. NEPA Environmental impact evaluations are conducted from this informational document.

*Equipment Owner:* The person responsible for the administrative control and operation of assigned SSC. He/she is responsible for work-start approval, job-site inspection, and approval to start postmaintenance test (PMT), as well as acceptance of PMT upon completion of Documented PMT.

**B. Definitions (cont.)**

*Estimated Jobs:* Jobs estimated in work-hours by using an engineering standard (e.g., NAVFACS, Kerney, or slotted time estimates).

*Facilities Management Information System (FMIS):* A computerized system developed for use by the Facilities Management Organization [and by others as approved by the Manager, Facilities Management Organization (FMO)] to track and retain pertinent maintenance activities including, but not limited to, description, status, and priority.

*Field Changes*: Are changes that need an engineering review and approval of proposed field changes before maintenance activities can proceed. These changes will require the responsible organizations to update or revise existing drawings, procedures, vendor documentation, etc. as a result of work being performed.

*FMO Planning Section:* Includes the planners responsible for development of job packages for maintenance activities.

*Follow-up Hazard Screening*: A hazards screening process conducted by a maintenance planner after the job is planned that compares any possible new hazards against the hazards identified during the process defined in Y10-012.

*Graded-Approach Strategy:* Methodology assigning specific levels of formality, graded according to risk, for each facility structure, system, or component. The equipment grade for SSC shall be identified in an Interim Equipment List.

**NOTE: The equipment grade determines the minimum level of planning required.**

1. *SSC Grade:* Until the Interim Equipment List assigns a grade to a specific structure, system, or component, the following general guidelines shall be used to determine the appropriate grade:

**NOTE: Y15-001INS shall be used for grading of equipment.**

a. *Grade 1*:

This grade represents those Safety-Class systems, structures, and unacceptable hazardous material exposures as defined in the authorization basis. The SC structures, systems, and components are typically identified in the authorization basis for the facility.

b. *Grade 2:*

This grade also represents those Safety Significant (SS) SSCs whose failure could result in an acute worker fatality or serious injuries to workers. The SC SSCs are typically identified in the authorization basis documents for the facility. (The SS-1 and SS-2 are both included in this category for those facilities using this categorization scheme).

c. *Grade 3*:

This grade represents those SSCs that require formal controls for environmental, mission, normal operational personnel safety, criticality defense-in-depth (beyond double contingency), or other reasons, but generally demand minimum rigor/control within the Configuration Management (CM) program.

**APPENDIX H (Page 6 of 9)**

**B. Definitions (cont.)**

d. *Grade 4*:

This is the default grade for general plant and standard industrial SSCs that will represent most SSCs within the Y-12 Plant. Grade shall not be applied to any SSC that can impact SC or SS equipment either directly or indirectly.

2. *Final Job Grade*: An overall job grade, determined by consideration of the equipment grade and the health and safety hazard identification, used to indicate the level of rigor and formality required of the maintenance planning process:

a. *Grade 1*:

Any work activity involving structures, systems, and components whose preventive or mitigative function is necessary to protect the public from unacceptable hazardous material exposures, as defined in the authorization basis. Also includes any work activity, if conducted without effective controls, that has the potential to result in unacceptable hazardous material exposure to the public.

b. *Grade 2*:

Any work activity involving structures, systems, and components whose failure could result in a worker fatality or serious injury to workers or any work activity on any structures, systems, and components where the work activity itself, if conducted without effective controls, could result in a worker fatality or serious injury or illness to workers.

c. *Grade 3:* Any work activity involving structures, systems, and components that:

- Involves new hazards or hazards not previously identified.
- Requires new or revised compliance permits (Has or OSWPs)
- Job hazards outside the scope of existing procedures for health and safety
- Job is complex/extreme technical difficulty and/or requires concurrent multiple craft personnel
- Job not been performed before
- Prior job execution resulted in ES&H concerns: new requirements or contract needed
- Craft personnel lack training, knowledge, or experience for the job
- Could impact job performance resulting in significant programmatic impacts
- Job task requires continuous maintenance work site supervision and/or ES&H technical oversight
- Job which requires a critical lift plan (a critical lift plan identifies job-specific lifting fixtures, specific [weight limits, length, material] type of rigging required for the job)

d. *Grade 4:*

Any work activity involving general plant and standard industrial structures, systems, and components where the work activity itself has the potential for worker injury or illness of only a minor nature.

*Electrical Hotwork*: Work that alters an energized circuit configuration by cutting a conductor or removal of a circuit component that is not designed to be removed as a normal operation.

*Hold Point:* A point identified within a inspection plan, procedure, or maintenance instruction beyond which work must not proceed until the requirement for the hold point has been performed. The Hold Point could consist of performing an action or a verification prior to proceeding with the next step.

**APPENDIX H (Page 7 of 9)**

**B. Definitions (cont.)**

*Interim Equipment Lists:* A detailed list of structures, systems, and components to be included in the maintenance program. The list should include both safety-related and nonsafety-related SSC. This list may sometimes be referred to as the master equipment data base.

*Job Hazard Analysis:* An orderly process used to acquire hazard/safety using Y70-043 information about a specific job or system from the hazard identification phase information from Y10-012.

*Job Package:* Consists of an MJR and all associated documentation required for performance of maintenance activities, based on the requirements of this procedure.

*Job Scope*: A definition of the work to be performed that clearly defines the customer requirements and establishes the boundaries of the work that is authorized to be performed.

*Job Plan:* A document written by a planner, which covers the entire scope of a job, including the steps necessary to be performed by another craft or support group.

*Lead Planner:* The planner who has overall responsibility for the MJR and is responsible for requesting necessary craft support for the execution of the job. It is the responsibility of the Planning Specialist in the area where the MJR is initiated to assign a lead planner for the job.

*Labor Standards (LS):* A general term used to describe our application of the Davis-Bacon Act and McNamara-O'Hara Service Contract Act in our contract with DOE.

*Lockout/Tagout:* A general term for all methods of ensuring the protection of personnel and equipment by installing danger tags, with or without lockout devices.

*Maintenance Importance Generator (MIG):* A computerized system using predetermined rules to compare data on an MJR and to establish relative-importance ranking for each maintenance job.

*Maintenance Job Request (MJR):* A form used for obtaining maintenance services. Issued to FMO planners, an MJR is used in defining, planning, and executing maintenance work (see Section II.B.a.).

*Maintenance Verification Point (MVP):* A verification point, which may be designated by the planner, customer, or Maintenance Supervisor, which requires a craftsperson to stop work and notify the Maintenance Supervisor to perform a technical function (e.g., inspection, contacting Quality Control, Rad Con, etc.) as indicated in the job-plan work instructions.

*Minor Maintenance (MM):*Maintenance jobs that require some level of planning greater than the SOC maintenance but doesn't require a full job package. Contains some brief Work instructions.

*Modification:* A change to SSC or an operating requirement; includes physical-design changes, set-point changes, or changes to specifications of spare parts.

*NEPA Determination:* A formal decision by the DOE, issuing approval or rejection of the NEPA (the National Environmental Policy Act of 1969) document. Approval indicates permission for the project to proceed as planned. Document rejection requires revision of existing document or preparation of a higher level NEPA document.

**APPENDIX H (Page 8 of 9)**

**B. Definitions (cont.)**

*NEPA Documents:* Required to address potential environmental impacts that may result from proposed actions. Such documents include Categorical Exclusions (CXs), Environmental Assessments (EAs), and Environmental Impact Statements (EISs). Documents are formally submitted to the DOE for determination.

*NHPA Determination:* A determination made by the DOE-ORO with request for concurrence from the Tennessee State Historic Preservation Officer and the Advisory Council on Historic Preservation regarding the historical, architectural, archaeological, or cultural significance of historical properties which allows the project to proceed. The determination states: (1) whether or not the historical properties are eligible for inclusion in the National Register of Historic Places, (2) whether or not the under- takings would have an adverse affect on the historical properties eligible for inclusion on the National Register, and (3) whether or not undertakings would have an adverse effect on adjacent properties eligible for or included in the National Register.

*NHPA Documentation:* Documentation is generated by the Project Manager or Project Engineer and compiled by the NEPA/NHPA Coordinator to assist the DOE, the Tennessee State Historic Preservation Officer, and the Advisory Council on Historic Preservation in the evaluation of the effects of undertakings on historical properties in which a determination would be made. The documentation consists of a written project description, one set of 8x10 color photographs, four sets of 3x5 black and white photographs (showing the outside of the building and surrounding structures, with a view from the north, south, east, and west), engineering drawings, a map depicting the location, and a chronology of the use of the building.

*Nuclear Facility*: For the purpose of this procedure, a Nuclear Facility is any facility that must be entered through a boundary control station.

*Operational Safety Board (OSB):* An organization formed and led by operations line management of a facility. The role of the OSB is to assist the Operations Manager in ensuring that work activities are performed within the safety authorization basis, activities are properly planned and authorized, controls are identified and implemented, and work is being executed safely. Maintenance and control activities may be reviewed by the OSB and any change requests must be approved by the OSB according to Configuration Management requirements.

*Part Number:* A unique number assigned to an item to establish identification for the material.

*Postmaintenance Test (PMT) Control Form:* The form used to provide instructions and documentation required for performing documented/formal PMT. (These instructions shall be viewed as a one-time-only procedure.) Each type of documented/formal PMT requires a separate form. (See FMO Procedure Y10-35-0403, *Executing Postmaintenance Testing*.)

*Postmaintenance Test (PMT):* Documented/Formal PMT or standard checkout and verification, performed following maintenance, which proves that the equipment is operable as designed and confirms the following:

I The original deficiency has been corrected.
II No new deficiencies have been created.
III The equipment is ready to return to the equipment owner.

*Pre-Job Briefing:* A meeting attended by representatives from all organizations involved in the job being discussed. The purpose of the briefing is to determine appropriate PPE requirements, H&S precautions, define individual roles and responsibilities, and to discuss other pertinent job information. The need for and the participants in a pre-job briefing are determined via the Initial Hazard Screening performed by the planner and customer using a matrix based on worker risk and job complexity. (Appendix I)

**APPENDIX H (Page 9 of 9)**

**B. Definitions (cont.)**

*Quality Assurance (QA) Requirements:* Procedures, predetermined by Operations or the Originator of the MJR, which identify quality requirements of a job.

*Radiation Work Permit (RWP):* The document providing (1) radiological evaluation and (2) authorization to perform specific activities involving personnel exposure to ionizing radiation. This permit describes radiological conditions and provides instructions for radiation protection controls required while performing maintenance activities.

*Radiological Restricted Area:* Any area with controlled access for the purpose of protecting individuals from exposure to radiation and/or radioactive contamination.

*Repair:* Process of restoring a nonconforming characteristic to a condition such that the capability of an item to function reliably and safely is unimpaired even though the item may still not conform to original requirements.

*SCI (Safety Class Items):* Those systems, individual components, and structures requiring rigorous configuration management (Levels 1 and 2), such that these items are controlled and approved by authorized persons throughout their life cycle. Safety Class 3 Items may also require such control at the discretion of line management.

*SSC (Structures, Systems, and Components):* Physical items designed, built, and/or installed to support the operation of the Y-12 Plant

*SOC:* Work performed on nonsafety-class item SSCs which may be performed without a detailed job package. The minimum requirements for a skill of craft type job is the MJR and the skill of the craft. SOC type jobs rely heavily on the Skill of Craft. These jobs can be worked using a MJR only or can be worked using a Standing Work Package (SWP). Any additional documentation (permits, JHAs, MSDS, etc.) required to ensure the job is executed safely and efficiently should be attached to the SWP card or MJR. The guidelines for SOC activities are included in Appendix B of this procedure.

*Standing Work Package (SWP):* The standing work package is a method of processing Skill of Craft (SOC) maintenance requests that require additional documentation beyond the MJR. The Standing Work Package reduces computer processing time by allowing the customer to call in jobs to the planner; allows more jobs to be worked utilizing SOC; and enhances maintenance response to customers and ensures that boundaries are clearly established for the work authorized to be accomplished. The guidelines for SWP packages are included in Appendix B of this procedure.

*Step-by-Step Work Instructions*: Detailed work instructions for the more complex with other than low worker health and safety risk where a technical procedure is not available. Step-by step work instructions require sequential compliance with work instructions and sign-off after each step is completed.

*Task:* An assigned piece of work, often to be finished within a certain time, which can be scheduled individually to be executed at a different time, or the entire job can be scheduled.

*Troubleshooting:* The process of locating and identifying SSC malfunctions through deductive and inductive reasoning and/or testing. The process may include (but is not limited to) such activities as taking readings, pulling fuses, stroking valves, changing electronic modules, partial or complete disassembly of a component, etc.

*Work Instructions:* Instructions developed and included in Job Package Instructions as required by a job package. They are designed for use in maintenance activities required by an MJR but not detailed by a procedure.

**APPENDIX I (Page 1 of 3)**
**WORK CONTROL MATRIX**

| | |
|---|---|
| Hazard: | A condition or set of conditions, either internal or external to a particular job, system, product, or operation, with the potential of causing harm tp personnel, damage to equipment or structures, or release of potentially hazardous materials to the environment. On Matrix, the "Hazard" column is an index of both severity of adverse consequence (severity) and probability that adverse consequence will occur (risk); |
| Low Hazard: | Work requiring the attention of the average performer to prevent minor injury. Failure to correctly perform low hazard work would not damage equipment or structures or release potentially hazardous materials into the environment, except as a result of gross negligence. |
| Medium Hazard: | Work requiring the coordinated actions of one or more person(s) to prevent any injury to personnel, minor damage to equipment or structures, or release of hazardous materials to the environment. |
| High Hazard: | Work requiring the coordinated actions of one or more person(s) to prevent serious injury to personnel, significant damage to equipment or structures, or release of reportable quantities of potentially hazardous materials to the environment. |
| Complex Job: | Work which involves any of the following:<br>• a large number of detailed steps to be performed requiring actions or sequence which may not be obvious or otherwise tax memory and capability such that written instructions are necessary (note: written instructions are not practical for steps which must be performed rapidly in succession)<br>• coordination of more than several people or organizations must occur to safely and properly execute the work<br>• Many variables are associated with the task which must be controlled<br>• Significant professional skill and/or special experience/training/skills must be involved (beyond what would be expected of the 'minimally qualified individual' to be assigned to the job. |
| Simple: | Work which doesn't require sequential steps and can be performed without written instructions. |
| Plan Formality: | Level and detail of planning and documented instruction necessary for the work at hand. |
| Technical Procedure: | A detailed work instruction written per Y-10-103, writer's Guide for Y-12 Plant Technical Procedures and administered per Y-10-102, Technical Procedure Process Control. These procedures are used for more complex tasks with other than low error consequences. . |
| Planned: | A Job Plan does not require the rigor and formality of control as a Technical Procedure but never-the-less provides documented written instructions. Job plans can include, or incorporate by reference, procedures, guidelines, vendor manuals, "standardized" job packages, and aids such as approved sketches and checklists. Generally, changes to a job plan may require simply supervisor's approval. Detailed instructions as found in technical equipment manuals may be incorporated in the work instruction |
| Minor Maintenance/SOC: | "SWP/Verbal" instructions are appropriate where minimal planning, coordination, approval and documentation is necessary. SWP/verbal instructions rely almost exclusively on the "skill of the craft" to properly execute assigned tasks. |

**WORK CONTROL MATRIX (cont.)**

| | |
|---|---|
| Supervisor Involvement: | This column sets requirements for the minimum involvement of the supervisor of the workers performing the job. |
| Maximum: | Supervisor must be thoroughly familiar with the assigned work, have read, understood and agreed to all work instructions, have personally visited the job site to ensure the adequacy of the work instruction and readiness to begin work, and carefully chosen the workers involved based on personal familiarity with the job's unique requirements and the workers' individual skills, experience, and training. |
| Normal: | Supervisor must comply with "Maximum Involvement" criteria except personal visits to the job site is not mandatory nor is personal hand picking of qualified workers. |
| Minimal | Supervisor must provide the level of involvement he/she sees fit based on professional experience. |
| SME Involvement in Hazard Analysis | Refers to the whether subject matter experts in ES&H support groups (e.g., safety engineers, industrial hygienists, radcon professionals, etc.) must also be personally involved in up-front (i.e., pre-planning) analysis of job hazards, specifying controls, and permit preparation. "Personally involved" refers to a qualified representative of the support group visiting job site to conduct pre-planning assessments, coordinating with others at the PCC, preparing applicable permits (rather than solely relying on the planner), etc. Also requires appropriate SME's to assist in pre-job start activities to verify that hazards have not gone unrecognized, permit conditions are being met and controls are adequate. |
| PCC Review: | Refers to the processing of the work at hand through a "Planning Coordination Center". The PCC meeting provides an organized forum for the various groups and subject matter experts and craft to collaborate their hazard identification/control and work planning efforts. The Planner is responsible for setting up and running the meetings through which certain work packages go. The PCC is essentially a forum where a nucleus of those involved in the work control process (Safety, IH, radcon, craft/craft supervision, planners, etc.) meet to process work packages. In order to reduce the number of people in the PCC meeting, participants may assume multiple duties; e.g., a representative from 'safety' can also represent 'IH or 'engineering' might also represent 'nuclear criticality'-- providing they know what to be looking for and can always call in more knowledgeable experts later.<br><br>At the PCC:<br><br>-- Hazard analyses can be conducted in concert using automated or conventional means;<br>-- Additional validation of work package occurs;<br>-- Davis Bacon screening can occur;<br>-- permits can be prepared/completed in a coordinated fashion (e.g., radcon can discuss PPE with IH to minimize inconsistencies);<br>-- Formal walk down dates can be established; and<br>-- In general, ideas are heard, awareness is built, and coordination occurs up-front in the process. |
| Formal Pre-Planning Walkdown: | Refers to a pre-planning walkdown where appropriate groups (including craft) visit the job site together to help plan and coordinate the job. While walkdowns can also occur which are ad hoc or informal, jobs which are deemed high hazard/high complexity necessitate formalized, multi disciplinary walkdowns. The planner leads the walk down and is responsible for scheduling and deciding who is required to come. |
| Crew Meeting: | Refers to the instructions and briefings given to the work force just before work is to begin. |
| Pre-Job Briefing: | Pre-job briefings usually occur at the job site and are lead by the supervisor. They require the mandatory participation of key people/disciplines as determined by the customer, planner, supervisor, and the IHS. |

APPENDIX I (Page 3 of 3)
Worker Hazard/Job Complexity Matrix (cont.)

| Work Control Level | Hazard/Complexity Determined through the use of Y10-35-008 Appendices/Checklists | Plan Formality | Supervisor Involvement | SME Involvement in Hazard Analysis | PCC* Review Mandatory | Formal Pre-Planning Walkdown | Pre-Job Instruction & Safety Review |
|---|---|---|---|---|---|---|---|
| "1" | Y10-35-008 Appendix D Job Planning Checklist only | technical procedure | maximum | required | yes | mandatory | Pre-Job Brief |
| "2" | | step-by-step written instructions | maximum | required | yes | mandatory | Pre-Job Brief |
| "3" | Y10-35-008 Appendices B, C, and D checklists as applicable | planned package | normal | determined by Y10-012 | yes | determined by Y10-012 | determined by Y10-012 |
| "3" | | minor maintenance | normal | determined by Y10-012 | no | determined by Y10-012 | determined by Y10-012 |
| "3" | | SOC | normal | determined by Y10-012 | no | determined by Y10-012 | Crew Meeting |
| "4" | Y20-35-008 Appendices B, C, and D checklists as applicable | planned | minimal | determined by Y10-012 | no | determined by IHS | determined by IHS |
| "4" | | minor maintenance /SOC | minimal | determined by Y10-012 | no | planner's discretion | Crew Meeting |

* "PCC": "Planning Coordination Center"